

SEQUENCE LISTING

Ole THASTRUP Sara BJRON Soren TULLIN Kasper ALMHOLT Kurt SCUDDER

<120> A Method For Extracting Quantitative Information Relating To An Influence On A Cellular Response

<130> 3759-0120P

<140> 10/072,036

<141> 2002-02-05

<150> 09/417,197

<151> 1999-10-07

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gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
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Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
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Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
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tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
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Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
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Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
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Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
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	Tyr	Asn	Ser	His		Val	Tyr	Ile	Met		Asp	Lys	Gln	Lys	Asn	
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val	GIn	Leu		Asp	His	Tyr	GIn		Asn	Thr	Pro	Ile		Asp	Gly	
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Pro	vaı		ьeu	Pro	Asp	Asn		Tyr	Leu	Ser	Thr		Ser	Ala	Leu	
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261	210	ASP	PIO	ASII	GIU	215	ALG	Asp	птѕ	Met	Val 220	ьеu	ьeu	GIU	Pne	
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Val	Thr	712	712	999 Clv	Tlo	Thr.	Tou	Clu	Mot	yac Aan	Glu	Tou	Tur	aag	Con	720
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OL y	100	**** 9	UCI	245	211 C	OIII	71± C	JCI	250	561	1111	Met	Ата	255	лта	
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gcc	atc	aag	aag	atc	agc	ccc	ttc	gaa	cat	cag	acc	tac	tgc	cag	cgc	1008
Ala	Ile	Lys	Lys	Ile	Ser	Pro	Phe	Glu	His	Gln	Thr	Tyr	Cys	Gln	Arg	
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acg	ctc	cgg	gag	atc	cag	atc	ctg	ctg	cgc	ttc	cgc	cat	gag	aat	gtc	1056
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Gln	Tla	Len	Ara	Glv	Len	Luc	Tur	Tla	Uic	Sor	Ala	Ago	gra	Tou	uic	1248
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сда	gat	cta	aaa		tcc	aac	cta	ctc		aac	acc	acc	tac		ctt	1296
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cac	acc	ggc	ttc	ctg	acg	gag	tat	gtg	gct	acq	cgc	tgg	tac	cgq	gcc	1392
His	Thr	Gly	Phe	Leu	Thr	Glu	Tyr	Val	Ala	Thr	Arg	Trp	Tyr	Arg	Āla	
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Phe Pro Gly Lys His Tyr Leu Asp Gln Leu Asn His Ile Leu Gly Ile
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Arg Met Leu Thr Phe Asn Pro Asn Lys Arg Ile Thr Val Glu Glu Ala
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 Leu

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 Gly
 Asp
 Val
 Asp
 Gly
 His
 Lys
 Phe
 Ser
 Val
 Ser
 Gly

 Glu
 Gly
 Gly
 Asp
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 Thr
 Thr

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Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
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Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
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Gly Leu Arg Ser Arg Ala Gln Ala Ser Asn Ser Thr Met Ala Ala Ala
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Asp Val Gly Pro Arg Tyr Thr Gln Leu Gln Tyr Ile Gly Glu Gly Ala
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Tyr Gly Met Val Ser Ser Ala Tyr Asp His Val Arg Lys Thr Arg Val
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Gln Ile Leu Arg Gly Leu Lys Tyr Ile His Ser Ala Asn Val Leu His
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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
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Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
                         135
 aac tac aac agc cac aac gtc tat atc atg gcc gac aag cag aac
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
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 ggc atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc
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Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
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 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
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agc	aaa	gac	Pro	aac Asn	Glu	aag Lys	Ara	Asp	His	Met	Val	Leu	Leu	Glu	Phe	072
ser	210	изр	FIO	ASII	Giu	215	2329	пор			220	204				
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Val	Thr	Ala	Ala	Gly		Thr	Leu	Gly	Met		Glu	Leu	Tyr	Lys		
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gga	ctc	aga	tct	cga	gta	acc Thr	atg	gcg	gcg	gcg	gcg	gcg	gcg	Glv	Pro	768
СТУ	ьеu	Arg	ser	245	Val	IIII	Mec	Ата	250	лта	лта	лта	ALG	255	110	
σασ	atq	atc	cqc		caq	gtg	ttc	gac		ggg	ccg	cgc	tac	act	aat	816
Glu	Met	Val	Arg	ĞÎÿ	Gln	Val	Phe	Asp	Val	Gly	Pro	Arg	Tyr	Thr	Asn	
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Leu	Ser	Tyr 275	тте	GTA	GIU	Gly	280	TYL	GIY	мес	Val	285	ser	Ата	ıyı	
αat	aat		aac	aaa	att	cga		act	atc	aaσ	aaa		agt	cct	ttt	912
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	His	Gln	Thr	Tyr		Gln	Arg	Thr	Leu		Glu	Ile	Lys	Ile	Leu 320	
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LCu	9		9	325					330			-		335		
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Ala	${\tt Pro}$	Thr	Ile	Glu	Gln	Met	Lys		Val	Tyr	Ile	Val		Asp	Leu	
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Asp	His	Ile	Cys	Tyr	Phe	Leu	Tyr	Gln	Ile	Leu		Gly	Leu	Lys	Tyr	
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ata	cat	tca	gct	aat	gtt Val	ctg Leu	His	Ara	Asn	Len	Lvs	Pro	Ser	Asn	Leu	1200
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Leu	Leu	Asn	Thr	Thr	Cys	Asp	Leu	Lys	Ile	Cys	Asp	Phe	Gly	Leu	Ala	
				405					410					415	+ - +	1206
cgt	gtt	gca	gat	cca	gac	cat His	gat	Cat	Thr	999 61v	Pho	T.e.ii	Thr	Glu	Tvr	1296
Arg	vaı	Ата	420	FIO	кър	1113	лор	425	1111	CLY	1110	шеш	430	010	- ]	
σta	qcc	acq	cgt	tgg	tac	aga	gct	cca	gaa	att	atg	ttg	aat	tcc	aag	1344
Val	Āla	Thr	Arg	Trp	Tyr	Arg	Ala	Pro	Glu	Ile	Met	Leu	Asn	Ser	Lys	
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ggt	tat	acc	aag	tcc	att	gat Asp	att	tgg	tct	gtg	ggc	Cyc	atc	CEG	gca Ala	1392
GIY	1yr 450	Thr	ьуѕ	ser	ire	455	116	ттр	Ser	Val	460	Cys	116	пец	mia	
gag		cta	tcc	aac	agg	cct	atc	ttc	cca	gga		cat	tac	ctt	gac	1440
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Gln	Leu	Asn	His		ьeu	Gly	тте	ьeu	G19 490	ser	rro	ser	GTU	495	ASP	
cta	aat	tat	ata	485 ata	aat	tta	aaa	act		aac	tat	tta	ctt		ctc	1536
Leu	Asn	Cys	Ile	Ile	Asn	Leu	Lys	Ála	Arg	Asn	Tyr	Leu	Leu	Ser	Leu	
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ccg	cac	aaa	aat	aag	gtg	ccg	tgg	aac	agg	ttg	ttc	cca	aac	gct	gac	1584
Pro	His	Lys	Asn	гÀг	val	Pro	Trp	Asn	Arg	ьeu	rne	PIO	ASN	WIG	Азр	

520 525 tcc aaa gct ctg gat tta ctg gat aaa atg ttg aca ttt aac cct cac 1632 Ser Lys Ala Leu Asp Leu Leu Asp Lys Met Leu Thr Phe Asn Pro His 530 535 aag agg att gaa gtt gaa cag gct ctg gcc cac ccg tac ctg gag cag 1680 Lys Arg Ile Glu Val Glu Gln Ala Leu Ala His Pro Tyr Leu Glu Gln 550 555 tat tat gac cca agt gat gag ccc att gct gaa gca cca ttc aag ttt 1728 Tyr Tyr Asp Pro Ser Asp Glu Pro Ile Ala Glu Ala Pro Phe Lys Phe 565 570 575 gac atg gag ctg gac gac tta cct aag gag aag ctc aaa gaa ctc att 1776 Asp Met Glu Leu Asp Asp Leu Pro Lys Glu Lys Leu Lys Glu Leu Ile 580 585 590 ttt gaa gag act gct cga ttc cag cca gga tac aga tct taa 1818 Phe Glu Glu Thr Ala Arg Phe Gln Pro Gly Tyr Arg Ser 600

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<211> 605

<212> PRT

<213> Artificial Sequence

<220>

<223> EGFP-Erk2 fusion

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Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
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                           235
Gly Leu Arg Ser Arg Val Thr Met Ala Ala Ala Ala Ala Gly Pro
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            245
Glu Met Val Arg Gly Gln Val Phe Asp Val Gly Pro Arg Tyr Thr Asn
                               265
                                                  270
Leu Ser Tyr Ile Gly Glu Gly Ala Tyr Gly Met Val Cys Ser Ala Tyr
                           280
Asp Asn Leu Asn Lys Val Arg Val Ala Ile Lys Lys Ile Ser Pro Phe
                      295
Glu His Gln Thr Tyr Cys Gln Arg Thr Leu Arg Glu Ile Lys Ile Leu
                   310
                                      315
Leu Arg Phe Arg His Glu Asn Ile Ile Gly Ile Asn Asp Ile Ile Arg
                                  330
               325
Ala Pro Thr Ile Glu Gln Met Lys Asp Val Tyr Ile Val Gln Asp Leu
                              345
           340
Met Glu Thr Asp Leu Tyr Lys Leu Leu Lys Thr Gln His Leu Ser Asn
                                              365
                           360
Asp His Ile Cys Tyr Phe Leu Tyr Gln Ile Leu Arg Gly Leu Lys Tyr
                                         380
                       375
Ile His Ser Ala Asn Val Leu His Arg Asp Leu Lys Pro Ser Asn Leu
                  390
                                      395
Leu Leu Asn Thr Thr Cys Asp Leu Lys Ile Cys Asp Phe Gly Leu Ala
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               405
Arg Val Ala Asp Pro Asp His Asp His Thr Gly Phe Leu Thr Glu Tyr
                              425
Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu Ile Met Leu Asn Ser Lys
                          440
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Gly Tyr Thr Lys Ser Ile Asp Ile Trp Ser Val Gly Cys Ile Leu Ala
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Glu Met Leu Ser Asn Arg Pro Ile Phe Pro Gly Lys His Tyr Leu Asp
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Gln Leu Asn His Ile Leu Gly Ile Leu Gly Ser Pro Ser Gln Glu Asp
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               485
Leu Asn Cys Ile Ile Asn Leu Lys Ala Arg Asn Tyr Leu Leu Ser Leu
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Pro His Lys Asn Lys Val Pro Trp Asn Arg Leu Phe Pro Asn Ala Asp
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Ser Lys Ala Leu Asp Leu Leu Asp Lys Met Leu Thr Phe Asn Pro His
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Lys Arg Ile Glu Val Glu Gln Ala Leu Ala His Pro Tyr Leu Glu Gln
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                   550
Tyr Tyr Asp Pro Ser Asp Glu Pro Ile Ala Glu Ala Pro Phe Lys Phe
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<212> DNA

<213> Artificial Sequence

<220>

<223> EGFP-Grk5 fusion

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Val	Glu	Leu	Asp 20	Gly	Åsp	Val	Asn	G1y 25	His	Lys	Phe	Ser	vai 30	ser	стА	
gag	ggc	gag	ggc	gat	gcc	acc	tac	ggc	aag	ctg	acc	ctg	aag	ttc	atc	144
Glu	Gly	Glu 35	Gly	Asp	Āla	Thr	Tyr 40	Gly	Lys	Leu	Thr	Leu 45	Lys	Phe	Ile	
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Glń	His	Āsp	Phe	Phe 85	Lys	Ser	Ala	Met	Pro 90	Glu	Gly	Tyr	Val	Gln 95	Glu	
cqc	acc	atc	ttc	ttc	aag	gac	gac	ggc	aac	tac	aag	acc	cgc	gcc	gag	336
Arg	Thr	Ile	Phe 100	Phe	Lys	Asp	Asp	Gly 105	Asn	Tyr	Lys	Thr	Arg 110	Ala	Glu	
ata	aag	ttc	qaq	ggc	gac	acc	ctg	gtg	aac	cgc	atc	gag	ctg	aag	ggc	384
Val	Lys	Phe 115	Glu	Gly	Asp	Thr	Leu 120	Val	Asn	Arg	Ile	Glu 125	Leu	Lys	Gly	
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Ile	Asp 130	Phe	Lys	Glu	Asp	Gly 135	Asn	Ile	Leu	Gly	His 140	Lys	Leu	Glu	Tyr	
aac	tac	aac	agc	cac	aac	gtc	tat	atc	atg	gcc	gac	aag	cag	aag	aac	480
Asn	Tyr	Asn	Ser	His	Asn	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	
145					150					155					160	528
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_				165	Phe				170					175		£7 <i>6</i>
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	210				Ğlu	215					220					500
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σтУ	ьeu	Arg	ser	245		GIII	лта	Jer	250		201		, J_u	255		
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Gly	Lys	Aro	l FÀs	Gly	Lys	Ser	Lys	г га	Trp	ь гуз	GIU	1 116	: Leu	. туѕ	Phe	

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Pro	His 290	Ile	Ser	Gln	Cys	Glu 295	Åsp	Leu	Arg	Arg	Thr 300	Ile	Asp	Arg	Asp	
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aac	ato		- 220	cct	ggc	ttc	gag	gag	gag	cgg	gcc	: ttg	, ttt	: tat	gcg	1632
Asr	1 Met	: Gly	y Ası	n Pro	Gl3	Phe 535	GIU	ı Glu	GIU	ı Arç	540) Ter	1 PILE	: I Y I	. AIG	
aca		· ata	cto	tgc	ggc	: tta	gaa	gac	cto	cac	c cgt	gag	g aac	acc	gtc	1680
Ālā	a Ğli	ı Ile	e Le	ı Cys	Gly	Leu	Glu	ı Asp	Lei	1 Hls	s Arç	g Glu	ı Ası	1 Thi	L var	
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Ile	e Ar	g Il	e Se	r As _l n	o Lei	ı Gl	, Lei	1 Alá 585	a va. 5	г гх:	S 110	e Pr	59	0	у изр	1824
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ct	a aa	c aa	c ca	g ag	g ta	c aa	c ct	g age	c cc	c ga	c ta	c tg	g gg	c ct	t ggc	· 1872
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Lys Glu Lys Val Lys Arg Glu Glu Val Asp Arg Arg Val Leu Glu Thr
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gag gag gtg tac tcc cac aag ttc tcc gag gag gcc aag tcc atc tgc
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Glu Glu Val Tyr Ser His Lys Phe Ser Glu Glu Ala Lys Ser Ile Cys
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                                665
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Lys Met Leu Leu Thr Lys Asp Ala Lys Gln Arg Leu Gly Cys Gln Glu
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Glu Gly Ala Ala Glu Val Lys Arg His Pro Phe Phe Arg Asn Met Asn
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ccc cgc gct gtg tac tgt aag gac gtg ctg gac atc gag cag ttc tcc
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Pro Arg Ala Val Tyr Cys Lys Asp Val Leu Asp Ile Glu Gln Phe Ser
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aag ttc tcc acg ggc tct gtg tcc atc cca tgg caa aac gag atg ata
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Lys Phe Ser Thr Gly Ser Val Ser Ile Pro Trp Gln Asn Glu Met Ile
                            760
gaa aca gaa tgc ttt aag gag ctg aac gtg ttt gga cct aat ggt acc
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Glu Thr Glu Cys Phe Lys Glu Leu Asn Val Phe Gly Pro Asn Gly Thr
                                             780
                         775
    770
                                                                      2400
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Leu Pro Pro Asp Leu Asn Arg Asn His Pro Pro Glu Pro Pro Lys Lys
                     790
ggg ctg ctc cag aga ctc ttc aag cgg cag cat cag aac aat tcc aag
                                                                      2448
Gly Leu Leu Gln Arg Leu Phe Lys Arg Gln His Gln Asn Asn Ser Lys
                                     810
                 805
agt tcg ccc agc tcc aag acc agt ttt aac cac cac ata aac tca aac
                                                                      2496
Ser Ser Pro Ser Ser Lys Thr Ser Phe Asn His His Ile Asn Ser Asn
                                 825
                                                     830
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<213> Artificial Sequence

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Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
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                                           60
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
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                   70
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
           100
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Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
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Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
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Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
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Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
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Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
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Gly Leu Arg Ser Arg Ala Gln Ala Ser Asn Ser Ser Met Glu Leu Glu
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Gly Lys Arg Lys Gly Lys Ser Lys Lys Trp Lys Glu Ile Leu Lys Phe
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Pro His Ile Ser Gln Cys Glu Asp Leu Arg Arg Thr Ile Asp Arg Asp
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Tyr Cys Ser Leu Cys Asp Lys Gln Pro Ile Gly Arg Leu Leu Phe Arg
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                                       315
Gln Phe Cys Glu Thr Arg Pro Gly Leu Glu Cys Tyr Ile Gln Phe Leu
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Asp Ser Val Ala Glu Tyr Glu Val Thr Pro Asp Glu Lys Leu Gly Glu
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Lys Gly Lys Glu Ile Met Thr Lys Tyr Leu Thr Pro Lys Ser Pro Val
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Phe Ile Ala Gln Val Gly Gln Asp Leu Val Ser Gln Thr Glu Glu Lys
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Val His Glu Tyr Leu Arg Gly Glu Pro Phe His Glu Tyr Leu Asp Ser
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                           440
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Tyr Arg Asp Leu Lys Pro Glu Asn Ile Leu Leu Asp Asp Tyr Gly His
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                          600
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Glu Gly Ala Ala Glu Val Lys Arg His Pro Phe Phe Arg Asn Met Asn
                    695
                                          700
Phe Lys Arg Leu Glu Ala Gly Met Leu Asp Pro Pro Phe Val Pro Asp
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                                      715
Pro Arg Ala Val Tyr Cys Lys Asp Val Leu Asp Ile Glu Gln Phe Ser
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Thr Val Lys Gly Val Asn Leu Asp His Thr Asp Asp Asp Phe Tyr Ser
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Lys Phe Ser Thr Gly Ser Val Ser Ile Pro Trp Gln Asn Glu Met Ile
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Glu Thr Glu Cys Phe Lys Glu Leu Asn Val Phe Gly Pro Asn Gly Thr
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                             780
Leu Pro Pro Asp Leu Asn Arg Asn His Pro Pro Glu Pro Pro Lys Lys
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                                      795
Gly Leu Leu Gln Arg Leu Phe Lys Arg Gln His Gln Asn Asn Ser Lys
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<213> Artificial Sequence

<220>

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<220>

<221> CDS

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Gâu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly 20 25 30 40 25 30 41 414 415 414 414 414 416 414 414 414 416 414 414 416 414 414 416 414 416 414 414 416 414					5		~		~~~		222	++-	200	~+~		aac	96
20 25 30 gag gag gag gat gcc act cac gag aag ctg acc ctg aag ttc atc Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile 40 40 40 40 40 41 40 40 41 40 41 40 41 40 45 45 46 45 46 45 46 47 48 48 48 49 49 49 49 49 49 40 40 40 40 40 40 40 40 40 40 40 40 40																	90
gag gag gag gag gag gat gac acc tac gag aag ctg acc ctg aag ttc atc 1144 Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile 35 tgc acc acc gag aag ctg ccc gtg ccc tgg ccc tac ctg tg acc acc 192 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Thr Sly 55 Ctg acc tac ggc gtg cag tgc ttc agc gc tac ccc gac cac atg aag 240 Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys 70 Cag cac gac ttc ttc aag tcc gc atg ccc ga agc tac gtc cag agg 288 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu 95 cgc acc act cttc ttc aag gac gac gac act acc aga gc gac acc acc atg gag 336 dry Till Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu 100 gtg aag ttc gag gg gac acc ctg gg gac acc acc acc aga ggc acc acc acc	val	GIU	Leu		дту	Asp	vaı	ASII		штэ	цуз	LIIC	361		501	CLy	
Giù Gly Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe IIe 45 tgc acc acc gg aag ctg coc gt ccc gtg ccc tcc gtg acc acc 192 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr 50 192 Ctg acc tac gg dtg cag tgc tc acc gc cac cac atg aag 240 Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys 65 70 75 80 Cag cac ac gac ttc ttc aag tcc cc atg cgc atg ccc gac ggc tac gtc cac gag ggc land gtc cac gag gcd land gtc gac gag land gtc gag ggc acc acc atg land gly land	gag	ggc	gag		gat	gcc	acc	tac		aag	ctg	acc	ctg	aag	ttc	atc	144
tgc acc acc ggc acc acc ggc acc acc ggc cc acc a																	
cys Thr Thr Gly Lys Leu Pro Val Pro Thr Leu Val Gln Cys Phe Ser Go Coc gac cac gac gac cac																	
50																	192
Ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag 240	Cys		Thr	GLY	Lys	Leu		Val	Pro	Trp	Pro		Leu	vaı	Thr	Thr	
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Ser Cag cac cac gac cac gac ttc ttc aag tcc gcc at gac gcc tac gcc gag ggc tac gcc gag ggc ll Gln Glu Gly Tyr Val Gln Glu Gly Asp Tyr Lys Tyr Arg Ala Glu Into Into Into Into Into Into Into Into	cta		tac	aac	ata	cad		ttc	agc	cac	tac		gac	cac	atσ	aaσ	240
65 70 75 80 cag cac gac ttc ttc taag tcc gcc atg ccc gaa ggc tac gtc cag gag 288 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu 95 cgc acc atc ttc ttc tc tc tc tc aag gac gac ggc aac tac aag acc gcg gcg gag 336 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu 100 gtg aag ttc gac gg gg gac acc ctg gtg aac cgc atc gag ctg aag ggc 384 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly 115 atc gac ttc aag gag gac gg acc acc act gtg ga acc acc act gag cac acc acg gac acc acc gtg His Lys Leu Glu Tyr 130 aac tac aaa agc cac aac gtc tat at atc atg gcc gac aag agc aga agc acc acc gtg His Asp Ala Asp Lys Glu Ly Tyr 130 aac tac aac agc cac acc gtc tat at atc atg gcc gac aag agc aga gac ggc atc and and acc acc acc gtc tat at atc atg gcc gac aag aga acc acc acc gac acc ac																	
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu 95 cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gac gag 336 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu 100 gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc 384 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly 115 atc gac ttc aag gag gac ggc acc act ctg ggg cac aag ctg gag tac 116 Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr 130 acc tac acc acc acc gtc tat atc atg gcc gac aag cag aag acc Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn 145 gtg at aag gtg acc ttc aag atc cac acc gcc acc acc acc acc acc gag acc acc			-	-			-			-			_				
S																	288
cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc ggc gag Arg Thr Ile Phe Phe Llys Asp Asp Gly Asn Tyr Llys Thr Arg Ala Glu 100 100 105 110 110 110 100 105 110 110	Gln	His	Asp	Phe		Lys	Ser	Ala	Met		Glu	Gly	Tyr	Val		Glu	
Arg Thr 11e Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu 100 gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc 384				++-		~	~~~	~~~	~~~		+ 2.0	220	300	cac		a a a	336
100 105 110 384 384 384 384 384 384 384 384 384 384 384 384 384 385 384 384 384 385 384 384 385 384 384 385 385 384 385																	330
State Stat	ALG	1111	110		1110	цуо	nop.	шор			- 1 -	110					
115 120 125 126 125 126 125 126 126 127 130 130 135 135 140	gtg	aag	ttc		ggc	gac	acc	ctg	gtg	aac	cgc	atc	gag	ctg	aag	ggc	384
atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac 432 fle Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr 130 135 135 140 aac tac aac aac aac gc cac aac ggt tat atc atg gcc gac aag cag aag aac 480 Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn 160 150 155 160 agc atc aag gtg aac ttc aag gtg atc ttc aag atc cgc cac aac atc gag gac agc agc agc agc agc acc atc cag gag aac acc tac cag aga aac acc atc gag gac agc agc agc agc agc agc agc ag	Val	Lys	Phe	Glu	Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	
The Asp Phe Lys Glu Asp Gly Asp The Leu Gly His Lys Leu Glu Tyr 130 135 135 140																	420
130																	432
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn 160 ggc atc aag gtg acc ttc aag atc cgc cac aac atc gag gac ggc 328 Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser 165	aac		aac	agc	cac	aac		tat	atc	atα	acc		aaσ	cag	aag	aac	480
145																	
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Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly ccc gtc ctg ctg cac ctac ctac ctac gac acc cagt cagt ctg gac cac ctg gac ctg gac ctg cat cag cat cat cat cat ctg gac ctg gac ttc ctg gac ttc ctg ctg ctg ctg gac ctg ctg<	a+ a	a > a	ctc	~~~		Cac	t a.c	C = C	car		acc	ccc	atc	aac		aac	576
180																	3.3
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Leu 195 Leu 200 Leu Ser Thr Gln Ser Ala Leu Glu Lys Arg Asp His Met Val Leu Leu Glu Phe 20 672 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe 20 20 720							- 1 -							_	•	-	
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Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe gtg acc gcc gcc ggg atc act ctc ggc atg gac gag ctg tac aag tcc 720 Val Thr Ala Ala Gly Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser 225 230 230 235 240 250 250 255 255 255 255 255 255 255 255 260						~~~	222		~ n +	a . a	2+4	at a		cta	aaa	++~	672
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Gly Leu Arg Ser Arg Ala Arg Ala Ile Met Ser Arg Ser Lys Arg Asp 245																	7.60
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aac aat ttt tat agt gta gag att gga gat tct aca ttc aca gtc ctg 816 Asn Asn Phe Tyr Ser Val Glu Ile Gly Asp Ser Thr Phe Thr Val Leu 260 265 270 aaa cga tat cag aat tta aaa cct ata ggc tca gga gct caa gga ata Lys Arg Tyr Gln Asn Leu Lys Pro Ile Gly Ser Gly Ala Gln Gly Ile 275 864 gta tgc gca gct tat gat gcc att ctt gaa aga aat gtt gca atc aag Val Cys Ala Ala Tyr Asp Ala Ile Leu Glu Arg Asn Val Ala Ile Lys 290 912	GIY	ьeu	Arg	ser	-	нта	ALG	Ата	116		Ser	лгу	Ser	пуз		пор	
Asn Asn Phe Tyr Ser Val Glu Ile Gly Asp Ser Thr Phe Thr Val Leu 260 265 270 aaa cga tat cag aat tta aaa cct ata ggc tca gga gct caa gga ata 864 Lys Arg Tyr Gln Asn Leu Lys Pro Ile Gly Ser Gly Ala Gln Gly Ile 275 280 285 gta tgc gca gct tat gat gcc att ctt gaa aga aat gtt gca atc aag 912 Val Cys Ala Ala Tyr Asp Ala Ile Leu Glu Arg Asn Val Ala Ile Lys 290 295 300	aac	aat	ttt	tat		gta	gag	att	qqa		tct	aca	ttc	aca	gtc	ctg	816
aaa cga tat cag aat tta aaa cct ata ggc tca gga gct caa gga ata Lys Arg Tyr Gln Asn Leu Lys Pro Ile Gly Ser Gly Ala Gln Gly Ile 275 280 285 gta tgc gca gct tat gat gcc att ctt gaa aga aat gtt gca atc aag Val Cys Ala Ala Tyr Asp Ala Ile Leu Glu Arg Asn Val Ala Ile Lys 290 295 300	Asn	Asn	Phe	Tyr	Ser	Val	Ğlu	Ile	Gly	Asp	Ser	Thr	Phe	Thr	Val	Leu	
Lys Arg Tyr Gln Asn Leu Lys Pro Ile Gly Ser Gly Ala Gln Gly Ile 275 280 285 gta tgc gca gct tat gat gcc att ctt gaa aga aat gtt gca atc aag Val Cys Ala Ala Tyr Asp Ala Ile Leu Glu Arg Asn Val Ala Ile Lys 290 295 300																	264
275 280 285 gta tgc gca gct tat gat gcc att ctt gaa aga aat gtt gca atc aag 912 Val Cys Ala Ala Tyr Asp Ala Ile Leu Glu Arg Asn Val Ala Ile Lys 290 295 300																	864
gta tgc gca gct tat gat gcc att ctt gaa aga aat gtt gca atc aag 912 Val Cys Ala Ala Tyr Asp Ala Ile Leu Glu Arg Asn Val Ala Ile Lys 290 295 300	Lys	Arg			Asn	ьeu	гуѕ		тте	GTÀ	ser	сту			GTĀ	тте	
Val Cys Ala Ala Tyr Asp Ala Ile Leu Glu Arg Asn Val Ala Ile Lys 290 295 300	αta	tac			tat	gat	acc		ctt	gaa	aga	aat			atc	aaσ	912
290 295 300	Val	Cys	Ala	Ala	Tyr	Asp	Ala	Ile	Leu	Glu	Arg	Asn	Val	Ála	Ile	Lys	
aag cta agc cga cca ttt cag aat cag act cat gcc aag cgg gcc tac 960		290	1				295					300					
	aag	cta	agc	cga	cca	ttt	cag	aat	cag	act	cat	gcc	aag	cgg	gcc	tac	960

D Gl. N. Cln Thr Hic Ala Tue Arg Ala Tur	
Lys Leu Ser Arg Pro Phe Gln Asn Gln Thr His Ala Lys Arg Ala Tyr 305 310 315 320	1000
aga gag cta gtt ctt atg aaa tgt gtt aat cac aaa aat ata att ggc Arg Glu Leu Val Leu Met Lys Cys Val Asn His Lys Asn Ile Ile Gly 325 330 335	1008
325 330 335 ctt ttg aat gtt ttc aca cca cag aaa tcc cta gaa gaa ttt caa gat	1056
Leu Leu Asn Val Phe Thr Pro Gln Lys Ser Leu Glu Glu Phe Gln Asp 340 345 350	
gtt tac ata gtc atg gag ctc atg gat gca aat ctt tgc caa gtg att	1104
Val Tyr Ile Val Met Glu Leu Met Asp Ala Asn Leu Cys Gln Val Ile 355 360 365	
cag atg gag cta gat cat gaa aga atg tcc tac ctt ctc tat cag atg	1152
Gln Met Glu Leu Asp His Glu Arg Met Ser Tyr Leu Leu Tyr Gln Met 370 375 380	
ctg tgt gga atc aag cac ctt cat tct gct gga att att cat cgg gac	1200
Leu Cys Gly Ile Lys His Leu His Ser Ala Gly Ile Ile His Arg Asp	
385 390 395 400	
tta aag ccc agt aat ata gta gta aaa tct gat tgc act ttg aag att Leu Lys Pro Ser Asn Ile Val Val Lys Ser Asp Cys Thr Leu Lys Ile	
405 410 415	
ctt gac ttc ggt ctg gcc agg act gca gga acg agt ttt atg atg acg	1296
Leu Asp Phe Gly Leu Ala Arg Thr Ala Gly Thr Ser Phe Met Met Thr	•
420 425 430	: 1344
cet tat gta gtg act ege tac tac aga gca ece gag gte ate ett gge	, 1344
Pro Tyr Val Val Thr Arg Tyr Tyr Arg Ala Pro Glu Val Ile Leu Gly 435 440 445	
atg ggc tac aag gaa aac gtg gat tta tgg tct gtg ggg tgc att atg	1392
Met Gly Tyr Lys Glu Asn Val Asp Leu Trp Ser Val Gly Cys Ile Met	:
450 455 460	1440
gga gaa atg gtt tgc cac aaa atc ctc ttt cca gga agg gac tat att	1440
Gly Glu Met Val Cys His Lys Ile Leu Phe Pro Gly Arg Asp Tyr Ile 465 470 475)
gat cag tgg aat aaa gtt att gaa cag ctt gga aca cca tgt cct gaa	a 1488
Asp Gln Trp Asn Lys Val Ile Glu Gln Leu Gly Thr Pro Cys Pro Glu	1
485 490 495	a 1536
ttc atg aag aaa ctg caa cca aca gta agg act tac gtt gaa aac agg Phe Met Lys Lys Leu Gln Pro Thr Val Arg Thr Tyr Val Glu Asn Arg	1 1330
500 505 510	
cct aga tat gct gga tat agc ttt gag aga ctc ttc cct gat gtc ct	1584
Pro Lys Tyr Ala Gly Tyr Ser Phe Glu Lys Leu Phe Pro Asp Val Le	1
515 520 525	1632
ttc cca gct gac tca gaa cac aac aaa ctt aaa gcc agt cag gca ag Phe Pro Ala Asp Ser Glu His Asn Lys Leu Lys Ala Ser Gln Ala Ar	,
530 535 540	
gat ttg tta tcc aaa atg ctg gta ata gat gca tct aaa agg atc tc	t 1680
Asp Leu Leu Ser Lys Met Leu Val Ile Asp Ala Ser Lys Arg Ile Se	r
545 550 555 56	
gta gat gaa gct ctc caa cac ccg tac atc aat gtc tgg tat gat cc Val Asp Glu Ala Leu Gln His Pro Tyr Ile Asn Val Trp Tyr Asp Pr	0
565 570 575	
tot gaa goa gaa got coa coa coa aag ato cot gao aag cag tta ga	t 1776
Ser Glu Ala Glu Ala Pro Pro Pro Lys Ile Pro Asp Lys Gln Leu As	p
580 585 590	a 1824
gaa agg gaa cac aca ata gaa gag tgg aaa gaa ttg ata tat aag ga Glu Arg Glu His Thr Ile Glu Glu Trp Lys Glu Leu Ile Tyr Lys Gl	
- ₅₉₅ 600 605	
gtt atg gac ttg gag gag aga acc aag aat gga gtt ata cgg ggg ca	g 1872
Val Met Asp Leu Glu Glu Arg Thr Lys Asn Gly Val Ile Arg Gly Gl	n
610 615 620	1902
ccc tct cct tta gca cag gtg cag cag tga	1502
Pro Ser Pro Leu Ala Gln Val Gln Gln	

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<211> 633

<212> PRT

<213> Artificial Sequence

<220>

<223> EGFP-Jnk1 fusion

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Gln Met Glu Leu Asp His Glu Arg Met Ser Tyr Leu Leu Tyr Gln Met
                   375
Leu Cys Gly Ile Lys His Leu His Ser Ala Gly Ile Ile His Arg Asp
                                       395
                   390
Leu Lys Pro Ser Asn Ile Val Val Lys Ser Asp Cys Thr Leu Lys Ile
                                    410
               405
Leu Asp Phe Gly Leu Ala Arg Thr Ala Gly Thr Ser Phe Met Met Thr
                                425
           420
Pro Tyr Val Val Thr Arg Tyr Tyr Arg Ala Pro Glu Val Ile Leu Gly
                                               445
                            440
Met Gly Tyr Lys Glu Asn Val Asp Leu Trp Ser Val Gly Cys Ile Met
                       455
Gly Glu Met Val Cys His Lys Ile Leu Phe Pro Gly Arg Asp Tyr Ile
                    470
                                       475
Asp Gln Trp Asn Lys Val Ile Glu Gln Leu Gly Thr Pro Cys Pro Glu
                485
                                   490
Phe Met Lys Lys Leu Gln Pro Thr Val Arg Thr Tyr Val Glu Asn Arg
                                505
                                                   510
            500
Pro Lys Tyr Ala Gly Tyr Ser Phe Glu Lys Leu Phe Pro Asp Val Leu
                                               525
                            520
Phe Pro Ala Asp Ser Glu His Asn Lys Leu Lys Ala Ser Gln Ala Arg
                       535
Asp Leu Leu Ser Lys Met Leu Val Ile Asp Ala Ser Lys Arg Ile Ser
                                       555
                   550
Val Asp Glu Ala Leu Gln His Pro Tyr Ile Asn Val Trp Tyr Asp Pro
                                   570
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               565
Ser Glu Ala Glu Ala Pro Pro Pro Lys Ile Pro Asp Lys Gln Leu Asp
                                                   590
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Glu Arg Glu His Thr Ile Glu Glu Trp Lys Glu Leu Ile Tyr Lys Glu
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Val Met Asp Leu Glu Glu Arg Thr Lys Asn Gly Val Ile Arg Gly Gln
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Pro Ser Pro Leu Ala Gln Val Gln Gln
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 Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu
 gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                       96
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			20		Asp			25					30				
gag Glu	ggc Gly	gag Glu 35	ggc Gly	gat Asp	gcc Ala	acc Thr	tac Tyr 40	ggc Gly	aag Lys	ctg Leu	acc Thr	ctg Leu 45	aag Lys	ttc Phe	atc Ile	14	4
tgc Cys	acc Thr 50	acc	ggc Gly	aag Lys	ctg Leu	ccc Pro 55	gtg	ccc Pro	tgg Trp	ccc Pro	acc Thr 60	ctc Leu	gtg Val	acc Thr	acc Thr	19	2
ctg Leu 65	acc	tac Tyr	ggc Gly	gtg Val	cag Gln 70	tgc	ttc Phe	agc Ser	cgc Arg	tac Tyr 75	ccc	gac Asp	cac His	atg Met	aag Lys 80	24	0
cag Gln	cac His	gac Asp	ttc Phe	ttc Phe 85	aag Lys	tcc Ser	gcc Ala	atg Met	ccc Pro 90	gaa Glu	ggc Gly	tac Tyr	gtc Val	cag Gln 95	gag Glu	28	8
cgc Arg	acc Thr	atc Ile	ttc Phe 100	ttc Phe	aag Lys	gac Asp	gac Asp	ggc Gly 105	aac Asn	tac Tyr	aag Lys	acc Thr	cgc Arg 110	gcc Ala	gag Glu	33	6
gtg Val	aag Lys	ttc Phe 115	gag Glu	ggc Gly	gac Asp	acc Thr	ctg Leu 120	gtg Val	aac Asn	cgc Arg	atc Ile	gag Glu 125	ctg Leu	aag Lys	ggc Gly	38	4
atc Ile	gac Asp 130	ttc	aag Lys	gag Glu	gac Asp	ggc Gly 135	aac Asn	atc Ile	ctg Leu	Gly ggg	cac His 140	aag Lys	ctg Leu	gag Glu	tac Tyr	43	2
aac Asn 145	tac	aac Asn	agc Ser	cac His	aac Asn 150	gtc	tat Tyr	atc Ile	atg Met	gcc Ala 155	gac Asp	aag Lys	cag Gln	aag Lys	aac Asn 160	48	0
ggc	atc Ile	aag Lys	gtg Val	aac Asn 165	ttc Phe	aag Lys	atc Ile	cgc Arg	cac His 170	aac Asn	atc Ile	gag Glu	gac Asp	ggc Gly 175	agc Ser	52	8.
gtg Val	cag Gln	ctc Leu	gcc Ala 180	gac Asp	cac His	tac Tyr	cag Gln	cag Gln 185	aac Asn	acc Thr	ccc Pro	atc Ile	ggc Gly 190	gac Asp	ggc Gly	57	6
ccc Pro	gtg Val	ctg Leu 195	ctg Leu	ccc Pro	gac Asp	aac Asn	cac His 200	tac Tyr	ctg Leu	agc Ser	acc Thr	cag Gln 205	tcc Ser	gcc Ala	ctg Leu	62	24
agc Ser	aaa Lys 210	gac Asp	ccc Pro	aac Asn	gag Glu	aag Lys 215	cgc Arg	gat Asp	cac His	atg Met	gtc Val 220	ctg Leu	ctg Leu	gag Glu	ttc Phe	67	12
gtg Val 225	acc	gcc Ala	gcc Ala	ggg Gly	atc Ile 230	act Thr	ctc Leu	ggc Gly	atg Met	gac Asp 235	gag Glu	ctg Leu	tac Tyr	aag Lys	tcc Ser 240	72	20
gga	ctc Leu	aga Arg	tct Ser	cga Arg 245	Gly	aaa Lys	atg Met	tct Ser	cag Gln 250	gag Glu	agg Arg	ccc Pro	acg Thr	ttc Phe 255	tac Tyr	76	88
cgg Arg	cag Gln	gag Glu	ctg Leu 260	aac	aag Lys	aca Thr	atc Ile	tgg Trp 265	gag Glu	gtg Val	ccc Pro	gag Glu	cgt Arg 270	tac Tyr	cag Gln	81	16
aac Asn	ctg Leu	tct Ser 275	Pro	gtg Val	ggc Gly	tct Ser	ggc Gly 280	Ala	tat Tyr	ggc Gly	tct Ser	gtg Val 285	Cys	gct Ala	gct Ala	86	64
ttt Phe	gac Asp 290	aca Thr	aaa	acg Thr	Gly	tta Leu 295	cgt Arg	gtg Val	gca Ala	gtg Val	aag Lys 300	Lys	ctc Leu	tcc Ser	aga Arg	9:	12
cca Pro 305	ttt Phe	caq	tcc Ser	ato	att Ile 310	cat His	gcg Ala	aaa Lys	aga Arg	acc Thr 315	Tyr	aga Arg	gaa Glu	ctg Leu	cgg Arg 320	9	60
tta	ctt	aaa Lys	cat His	atg Met	aaa Lys	cat	gaa Glu	aat Asn	gtg Val 330	att Ile	ggt	ctg Leu	ttg Leu	gac Asp 335	gtt Val	10	80
ttt Phe	aca Thr	cct	gca Ala 340	agg Arg	tct	ctg Leu	gag	gaa Glu 345	tto Phe	aat	gat Asp	gtg Val	tat Tyr 350	ctg Leu	gtg Val	10	56
acc	cat	cto			g gca	gat	cto			att	gto	aaa			aag	11	04

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Thr His Leu Met Gly Ala Asp Leu Asn Asn Ile Val Lys Cys Gln Lys
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Leu Thr Asp Asp His Val Gln Phe Leu Ile Tyr Gln Ile Leu Arg Gly
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cta aag tat ata cat tca gct gac ata att cac agg gac cta aaa cct
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Leu Lys Tyr Ile His Ser Ala Asp Ile Ile His Arg Asp Leu Lys Pro
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                                         395
agt aat cta gct gtg aat gaa gac tgt gag ctg aag att ctg gat ttt
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Ser Asn Leu Ala Val Asn Glu Asp Cys Glu Leu Lys Ile Leu Asp Phe
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gga ctg gct cgg cac aca gat gat gaa atg aca ggc tac gtg gcc act
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Gly Leu Ala Arg His Thr Asp Asp Glu Met Thr Gly Tyr Val Ala Thr
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Arg Trp Tyr Arg Ala Pro Glu Ile Met Leu Asn Trp Met His Tyr Asn
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                            440
                                                445
cag aca gtt gat att tgg tca gtg gga tgc ata atg gcc gag ctg ttg
                                                                     1392
Gln Thr Val Asp Ile Trp Ser Val Gly Cys Ile Met Ala Glu Leu Leu
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                                            460
act gga aga aca ttg ttt cct ggt aca gac cat att gat cag ttg aag
                                                                     1440
Thr Gly Arg Thr Leu Phe Pro Gly Thr Asp His Ile Asp Gln Leu Lys
                    470
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ctc att tta aga ctc gtt gga acc cca ggg gct gag ctt ttg aag aaa
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Leu Ile Leu Arg Leu Val Gly Thr Pro Gly Ala Glu Leu Leu Lys Lys
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Ile Ser Ser Glu Ser Ala Arg Asn Tyr Ile Gln Ser Leu Thr Gln Met
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                                                    510
ccg aag atg aac ttt gcg aat gta ttt att ggt gcc aat ccc ctg gct
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Pro Lys Met Asn Phe Ala Asn Val Phe Ile Gly Ala Asn Pro Leu Ala
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                                                525
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Val Asp Leu Leu Glu Lys Met Leu Val Leu Asp Ser Asp Lys Arg Ile
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aca gcg gcc caa gcc ctt gca cat gcc tac ttt gct cag tac cac gat
                                                                    1680
Thr Ala Ala Gln Ala Leu Ala His Ala Tyr Phe Ala Gln Tyr His Asp
                   550
                                        555
cct gat gat gaa cca gtg gcc gat cct tat gat cag tcc ttt gaa agc
                                                                    1728
Pro Asp Asp Glu Pro Val Ala Asp Pro Tyr Asp Gln Ser Phe Glu Ser
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                                   570
agg gac ctc ctt ata gat gag tgg aaa agc ctg acc tat gat gaa gtc
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Arg Asp Leu Leu Ile Asp Glu Trp Lys Ser Leu Thr Tyr Asp Glu Val
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atc agc ttt gtg cca cca ccc ctt gac caa gaa gag atg gag tcc tga
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<212> PRT

<213> Artificial Sequence

<220>

<223> EGFP-p38 fusion

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Leu Ile Leu Arg Leu Val Gly Thr Pro Gly Ala Glu Leu Leu Lys Lys 490 485 Ile Ser Ser Glu Ser Ala Arg Asn Tyr Ile Gln Ser Leu Thr Gln Met 505 Pro Lys Met Asn Phe Ala Asn Val Phe Ile Gly Ala Asn Pro Leu Ala 520 Val Asp Leu Leu Glu Lys Met Leu Val Leu Asp Ser Asp Lys Arg Ile 535 Thr Ala Ala Gln Ala Leu Ala His Ala Tyr Phe Ala Gln Tyr His Asp 550 555 Pro Asp Asp Glu Pro Val Ala Asp Pro Tyr Asp Gln Ser Phe Glu Ser 570 565 Arg Asp Leu Leu Ile Asp Glu Trp Lys Ser Leu Thr Tyr Asp Glu Val 585 Ile Ser Phe Val Pro Pro Pro Leu Asp Gln Glu Met Glu Ser 600 <210> 48 <211> 2907 <212> DNA <213> Artificial Sequence <220> EGFP-p85alpha fusion <223> <220> <221> CDS <222> (1)..(2904) <400> 48 48 atg gtg agc aag ggc gag gtg ttc acc ggg gtg gtg ccc atc ctg Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu 10 gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc 96 Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly 25 144 gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile 40 45 35 tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc 192 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr

90

55

70

100

65

ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag

Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys

cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag

Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu

cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu 105

gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc

60

75

240

288

336

384

			115					120	Val				125				
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		130					135					140					400
aa	C	tac	aac	agc	cac	aac	gtc	tat	atc	atg	gcc	gac	aag	cag	aag	aac	480
As	sn '	Tyr	Asn	Ser	His	Asn	Val	Tyr	Ile	Met		Asp	Lys	Gin	Lys	Asn	
14	15					150					155					160	500
go	TC .	atc	aag	gtg	aac	ttc	aag	atc	cgc	cac	aac	atc	gag	gac	ggc	agc	528
G]	Lу	Ile	Lys	Val	Asn 165	Phe	Lys	Ile	Arg	His 170	Asn	Ile	Glu	Asp	Gly 175	Ser	
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Va	aĺ	Gln	Leu	Ala 180	Asp	His	Tyr	Gln	Gln 185	Asn	Thr	Pro	Ile	Gly 190	Asp	Gly	
C	cc	ata	cta	cta	ccc	gac	aac	cac	tac	ctg	agc	acc	cag	tcc	gcc	ctg	624
P	ro	Val	Leu	Leu	Pro	Ásp	Asn	His	Tyr	Leu	Ser	Thr	Gln	Ser	Ala	Leu	
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a.	7.0	aaa		CCC	aac	gag	aag	cac	gat	cac	atq	gtc	ctg	ctg	gag	ttc	672
9	gC ar	Tue	Asn	Pro	Asn	Glu	Lvs	Ara	Asp	His	Met	Val	Leu	Leu	Glu	Phe	
.51	ΞL	210	АЗР	110	11511	010	215	9				220					
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9	Eg	acc	310	710	999	Tlo	Thr	Len	Gly	Met	Asn	Glu	Leu	Tvr	Lvs	Ser	
		Thr	Ата	Ата	СТУ	230	IIIL	neu	GLY	Mec	235	OLG		- 1 -	-1-	240	
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Ģ	lу	Leu	Arg	Ser		Ser	Ата	GIU	Gly		GTII	тăг	Arg	Ala	255	1 7 1	
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			355	i			•	360)				365	•			
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ī	ro	Asp	Ile	Ala	Pro	Pro	Leu	Lev	ı Ile	Lys	Leu	ı Val	Glu	ı Ala	Ile	Glu	
•		370					375			_		380)				
	227	222	aat	cto	г даа	tat	tca	act	. cta	tac	: aga	aca	cag	gago	tcc	agc	1200
1		Tays	Gl:	, T.e.	Glu	Cvs	Ser	Thr	Lev	ı Tvr	Ara	Thr	Glr	ı Ser	Ser	Ser	
	385		, 013	ДСС	. 010	390				_	395	5				400	
	202	a+a			. ++a	Cas	cac	ctt	- ctt	gat			aca	a ccc	tcc	gtg	1248
	aac	Tav	, 71.	. Clu	TON	Arc	. Glr	, CC	1 T.el	ı Asr	CVS	Asr	Thi	Pro	Sei	val	
4	ASI	ьес	i AT	a GIU	405		, 611	. пс	1 1100	410					415	5	
			. ~		40.	, , ,,,,+	· a+a	1 (2)	~ att			gar	act	ttc		a cgc	1296
9	gac	ttg	g gaa	aato	acc	; gat	. 949	y Cat	- 17a	L	, 7,1 -) Der	. Δ1:	Phe	> T.V.5	s Arg	
1	Asp	ь тел	ı GİI			: AS	νa.	LT	s va. 425		~ DTC	. nai		430	ı.)	9	
				420	<i>,</i>						- ~~-		a (10)			ant.	1344
	tat	cto	cto	g gad	: tta	1 CC	a aat	. cci	L gro	. a.l.	2 D	יות ב	2 JU	2 yuu	T17	c agt	1011
	ı, Ar	Let			э тег	ı Pro	ASI			T TT6	5 FI	` WT(44	_ vu.	y ·	r Ser	
			43	5				44				~ +~·			a + a t	t att	1392
	gaa	atç	g at	t tc	t tta	a gct	c cca	a ga	a gt	a caa	a ago		- ya	u ya	. ca	t att	1372

Glu	Met	Ile	Ser	Leu	Ala	Pro	Glu	Val	Gln	Ser	Ser	Glu	Glu	Tyr	Ile	
cag	450 Cta	tta	aag	aag	ctt	455 att	agg	t.ca	cct	agc	460 ata	cct	cat	caq	tat	1440
Gln	Leu	Leu	Lys	Lys	Leu	Ile	Arg	Ser	Pro	Ser	Ile	Pro	His	Gln	Tyr	
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_				485					490					495		
			aaa													1536
Thr	Ser	Ser	Lys 500	Asn	ьеи	Leu	ASI	505	Arg	vaı	ьеu	ser	510	TIE	File	
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Ser	Pro	Met 515	Leu	Phe	Arg	Phe	Ser 520	Ala	Ala	Ser	Ser	Asp 525	Asn	Thr	Glu	
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Arg	Gl'n	Pro	Ãla	Pro	Āla	Leu	Pro	Pro	Lys	Pro	${\tt Pro}$	Lys	Pro	Thr	Thr	
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Asp	Thr	Ala 595	Asp	Gly	Thr	Phe	Leu 600	Val	Arg	Asp	Ата	Ser 605	Thr	гàг	Met	
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His	Gly 610	Asp	Tyr	Thr	Leu	Thr 615	Leu	Arg	Lys	Gly	Gly 620	Asn	Asn	Lys	Leu	
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Ser	Lys	Tyr 675	Gln	Gln	Asp	Gln	Val 680	Val	Lys	Glu	Asp	Asn 685	Ile	Glu	Ala	
gta	ggg	aaa	aaa	tta	cat	gaa	tat	aac	act	cag	ttt	caa	gaa	aaa	agt	2112
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Ile	Glu	Lys 755	Phe	Lys	Arg	Glu	Gly 760	Asn	Glu	Lys	Glu	11e 765	Gln	Arg	Ile	
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Met	His 770		Tyr	Asp	Lys	Leu 775		Ser	Arg	Ile	Ser 780		ile	ıle	Asp	
agt			aga	ttg	gaa	gaa	gac	ttg	aag	aag	cag	gca	gct	gag	tat	2400

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Arg Glu Ile Asp Lys Arg Met Asn Ser Ile Lys Pro Asp Leu Ile Gln
                                   810
ctg aga aag acg aga gac caa tac ttg atg tgg ttg act caa aaa ggt
                                                                   2496
Leu Arg Lys Thr Arg Asp Gln Tyr Leu Met Trp Leu Thr Gln Lys Gly
                               825
                                                                   2544
gtt cgg caa aag aag ttg aac gag tgg ttg ggc aat gaa aac act gaa
Val Arg Gln Lys Lys Leu Asn Glu Trp Leu Gly Asn Glu Asn Thr Glu
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gac caa tat tca ctg gtg gaa gat gat gaa gat ttg ccc cat cat gat
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Asp Gln Tyr Ser Leu Val Glu Asp Asp Glu Asp Leu Pro His His Asp
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gag aag aca tgg aat gtt gga agc agc aac cga aac aaa gct gaa aac
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Glu Lys Thr Trp Asn Val Gly Ser Ser Asn Arg Asn Lys Ala Glu Asn
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                                      875
ctg ttg cga ggg aag cga gat ggc act ttt ctt gtc cgg gag agc agt
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Leu Leu Arg Gly Lys Arg Asp Gly Thr Phe Leu Val Arg Glu Ser Ser
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aaa cag ggc tgc tat gcc tgc tct gta gtg gtg gac ggc gaa gta aag
                                                                   2736
Lys Gln Gly Cys Tyr Ala Cys Ser Val Val Val Asp Gly Glu Val Lys
           900
                               905
                                                                   2784
cat tgt gtc ata aac aaa aca gca act ggc tat ggc ttt gcc gag ccc
His Cys Val Ile Asn Lys Thr Ala Thr Gly Tyr Gly Phe Ala Glu Pro
                           920
tat aac ttg tac agc tct ctg aaa gaa ctg gtg cta cat tac caa cac
                                                                   2832
Tyr Asn Leu Tyr Ser Ser Leu Lys Glu Leu Val Leu His Tyr Gln His
acc tcc ctt gtg cag cac aac gac tcc ctc aat gtc aca cta gcc tac
                                                                   2880
Thr Ser Leu Val Gln His Asn Asp Ser Leu Asn Val Thr Leu Ala Tyr
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cca gta tat gca cag cag agg cga tga
Pro Val Tyr Ala Gln Gln Arg Arg
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<212> PRT

<213> Artificial Sequence

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<223> EGFP-p85alpha fusion

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 Glu
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 Phe
 Leu
 Leu
 Phe
 Leu
 Lys
 Phe
 Ser
 Ile
 Leu
 Leu
 Asp
 Gly
 Asp
 Val
 Asp
 Gly
 His
 Lys
 Phe
 Ser
 Val
 Ser
 Gly

 Glu
 Gly
 Gly
 Asp
 Ala
 Thr
 Tyr
 Gly
 Leu
 Leu
 Lys
 Phe
 Ile

 Glu
 Gly
 Gly
 Asp
 Ala
 Thr
 Tyr
 Gly
 Leu
 Thr
 Ile
 Leu
 L

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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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                      90
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
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                          120
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
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                                     155
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
                                170
              165
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
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                              185
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
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                                             205
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
                                        220
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Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
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                                    235
Gly Leu Arg Ser Met Ser Ala Glu Gly Tyr Gln Tyr Arg Ala Leu Tyr
                                250
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Asp Tyr Lys Lys Glu Arg Glu Glu Asp Ile Asp Leu His Leu Gly Asp
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Ile Leu Thr Val Asn Lys Gly Ser Leu Val Ala Leu Gly Phe Ser Asp
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Gly Gln Glu Ala Arg Pro Glu Glu Ile Gly Trp Leu Asn Gly Tyr Asn
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Glu Thr Thr Gly Glu Arg Gly Asp Phe Pro Gly Thr Tyr Val Glu Tyr
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Ile Gly Arg Lys Lys Ile Ser Pro Pro Thr Pro Lys Pro Arg Pro Pro
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Arg Pro Leu Pro Val Ala Pro Gly Ser Ser Lys Thr Glu Ala Asp Val
                              345
Glu Gln Gln Ala Leu Thr Leu Pro Asp Leu Ala Glu Gln Phe Ala Pro
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Pro Asp Ile Ala Pro Pro Leu Leu Ile Lys Leu Val Glu Ala Ile Glu
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Lys Lys Gly Leu Glu Cys Ser Thr Leu Tyr Arg Thr Gln Ser Ser Ser
       390 395
Asn Leu Ala Glu Leu Arg Gln Leu Leu Asp Cys Asp Thr Pro Ser Val
                                  410
Asp Leu Glu Met Ile Asp Val His Val Leu Ala Asp Ala Phe Lys Arg
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Tyr Leu Leu Asp Leu Pro Asn Pro Val Ile Pro Ala Ala Val Tyr Ser
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Glu Met Ile Ser Leu Ala Pro Glu Val Gln Ser Ser Glu Glu Tyr Ile
                      455
                                        460
Gln Leu Leu Lys Lys Leu Ile Arg Ser Pro Ser Ile Pro His Gln Tyr
                                      475
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Trp Leu Thr Leu Gln Tyr Leu Leu Lys His Phe Phe Lys Leu Ser Gln
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Thr Ser Ser Lys Asn Leu Leu Asn Ala Arg Val Leu Ser Glu Ile Phe
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Ser Pro Met Leu Phe Arg Phe Ser Ala Ala Ser Ser Asp Asn Thr Glu
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Asn Leu Ile Lys Val Ile Glu Ile Leu Ile Ser Thr Glu Trp Asn Glu
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Arg Gln Pro Ala Pro Ala Leu Pro Pro Lys Pro Pro Lys Pro Thr Thr
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Val Ala Asn Asn Gly Met Asn Asn Asn Met Ser Leu Gln Asn Ala Glu
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Trp Tyr Trp Gly Asp Ile Ser Arg Glu Glu Val Asn Glu Lys Leu Arg
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Asp Thr Ala Asp Gly Thr Phe Leu Val Arg Asp Ala Ser Thr Lys Met
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His Gly Asp Tyr Thr Leu Thr Leu Arg Lys Gly Gly Asn Asn Lys Leu
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Ile Lys Ile Phe His Arg Asp Gly Lys Tyr Gly Phe Ser Asp Pro Leu
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Thr Phe Ser Ser Val Val Glu Leu Ile Asn His Tyr Arg Asn Glu Ser
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Leu Ala Gln Tyr Asn Pro Lys Leu Asp Val Lys Leu Leu Tyr Pro Val
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Ser Lys Tyr Gln Gln Asp Gln Val Val Lys Glu Asp Asn Ile Glu Ala
                                            685
       675
                          680
Val Gly Lys Lys Leu His Glu Tyr Asn Thr Gln Phe Gln Glu Lys Ser
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Arg Glu Tyr Asp Arg Leu Tyr Glu Glu Tyr Thr Arg Thr Ser Gln Glu
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              725
Ile Phe Glu Glu Gln Cys Gln Thr Gln Glu Arg Tyr Ser Lys Glu Tyr
                                   750
                            745
Ile Glu Lys Phe Lys Arg Glu Gly Asn Glu Lys Glu Ile Gln Arg Ile
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Met His Asn Tyr Asp Lys Leu Lys Ser Arg Ile Ser Glu Ile Ile Asp
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Ser Arg Arg Arg Leu Glu Glu Asp Leu Lys Lys Gln Ala Ala Glu Tyr
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Arg Glu Ile Asp Lys Arg Met Asn Ser Ile Lys Pro Asp Leu Ile Gln
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Leu Arg Lys Thr Arg Asp Gln Tyr Leu Met Trp Leu Thr Gln Lys Gly
                              825
Val Arg Gln Lys Lys Leu Asn Glu Trp Leu Gly Asn Glu Asn Thr Glu
                         840
Asp Gln Tyr Ser Leu Val Glu Asp Asp Glu Asp Leu Pro His His Asp
                                         860
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Glu Lys Thr Trp Asn Val Gly Ser Ser Asn Arg Asn Lys Ala Glu Asn
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                 870
Leu Leu Arg Gly Lys Arg Asp Gly Thr Phe Leu Val Arg Glu Ser Ser
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Lys Gln Gly Cys Tyr Ala Cys Ser Val Val Val Asp Gly Glu Val Lys
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           900
His Cys Val Ile Asn Lys Thr Ala Thr Gly Tyr Gly Phe Ala Glu Pro
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                          920
Tyr Asn Leu Tyr Ser Ser Leu Lys Glu Leu Val Leu His Tyr Gln His
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Thr Ser Leu Val Gln His Asn Asp Ser Leu Asn Val Thr Leu Ala Tyr
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<212> DNA

<213> Artificial Sequence

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gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                      - 96
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                25
                                                                     144
gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                            40
                                                                     192
tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
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                                                                     240
ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
caq cac qac ttc ttc aaq tcc gcc atg ccc gaa ggc tac gtc cag gag
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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
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Arg Thr Ile Phe Phe Lys Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
                            120
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atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac
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Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
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                                            140
aac tac aac agc cac aac gtc tat atc atg gcc gac aag cag aag aac
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
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ggc atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc
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Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
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                                                        175
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gtg cag ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
                                185
ccc gtg ctg ctc ccc gac aac cac tac ctg agc acc cag tcc gcc ctg
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Pro Val Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
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                            200
                                                205
age aaa gae eec aac gag aag ege gat eac atg gte etg etg gag tte
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Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
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                        215
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qtq acc qcc ggg atc act ctc ggc atg gac gag ctg tac aag tcc
Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
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                    230
gga ctc aga tct cga gct caa gct tcg aat tcg acc atg tcg tcc atc
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Gly Leu Arg Ser Arg Ala Gln Ala Ser Asn Ser Thr Met Ser Ser Ile
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<223> EGFP-Smad2 fusion

864

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				-		Lys	-			_	_		_	_		712
GIU	290	цуз	тър	Cys	GIU	295	Ата	Val	цуз	Ser		Val	цуз	Буз	пец	
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_				_		gat					-					960
Lys	Lys	Thr	Gly	Arg	Leu	Asp	Glu	Leu	Glu	Lys	Ala	Ile	Thr	Thr	Gln	
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		- 4										_		335		
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\mathtt{Trp}	Gly	Leu	Ser	Thr	Pro	Asn	Thr	Ile	Asp	Gln	\mathtt{Trp}	Asp	Thr	Thr	Gly	
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						Gln										
	- 2	355					360	9				365	9	200	01	
at a	+ 00		~~~	222	~~~	++~		~~+	~++	-+-					.	1150
						ttg										1152
vai		HIS	Arg	гÀг	GIA	Leu	Pro	HIS	vaı	тте	_	Cys	Arg	Leu	Trp	
	370					375					380					
cgc	tgg	cct	gat	ctt	cac	agt	cat	cat	gaa	ctc	aag	gca	att	gaa	aac	1200
Arg	Trp	Pro	Asp	Leu	His	Ser	His	His	Glu	Leu	Lys	Ala	Ile	Glu	Asn	
385	_		-		390					395	-				400	
tac	паа	tat	act	+++		ctt	222	nss	rat		ata	tat	ata	220		1248
						Leu		_	-	_	_	_	-			1240
Cys	Giu	тут	Ата		ASII	цец	пуз	пур	_	GIU	val	Cys	vai		PLO	
				405					410		_			415		
						gag										1296
Tyr	His	Tyr	Gln	Arg	Val	Glu	Thr	Pro	Val	Leu	Pro	Pro	Val	Leu	Val	
			420					425					430			
ccc	cga	cac	acc	gag	atc	cta	aca	gaa	ctt	ccq	cct	ctq	gat	gac	tat	1344
						Leu										
	- 3	435					440					445			-1-	
act	C 2 C		a++	~~~	~ ~ ~	aac		220	++0	~~~	~~~	-	-++	~~~		1200
																1392
THE		ser	тте	Pro	GIU	Asn	Thr	Asn	Pne	Pro		GTA	тте	GIU	Pro	
	450					455					460					
						gaa										1440
Gln	-	_	-	T1 -	Dro	~ ~		_				T	T 7 -	0		
	Ser	Asn	Tyr	тте	FIO	GLu	Thr	Pro	Pro	Pro	Gly	TAT	тте	ser	Glu	
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gat	gga	gaa	aca	agt	470 gac	caa	cag	ttg	aat	475 caa	agt	atg	gac	aca	480 ggc	1488
gat	gga	gaa	aca	agt Ser	470 gac		cag	ttg	aat Asn	475 caa	agt	atg	gac	aca Thr	480 ggc	1488
gat Asp	gga Gly	gaa Glu	aca Thr	agt Ser 485	470 gac Asp	caa Gln	cag Gln	ttg Leu	aat Asn 490	475 caa Gln	agt Ser	atg Met	gac Asp	aca Thr 495	480 ggc Gly	
gat Asp tct	gga Gly cca	gaa Glu gca	aca Thr gaa	agt Ser 485 cta	470 gac Asp	caa Gln cct	cag Gln act	ttg Leu act	aat Asn 490 ctt	475 caa Gln tcc	agt Ser cct	atg Met gtt	gac Asp aat	aca Thr 495 cat	480 ggc Gly agc	1488 1536
gat Asp tct	gga Gly cca	gaa Glu gca	aca Thr gaa	agt Ser 485 cta	470 gac Asp	caa Gln	cag Gln act	ttg Leu act	aat Asn 490 ctt	475 caa Gln tcc	agt Ser cct	atg Met gtt	gac Asp aat	aca Thr 495 cat	480 ggc Gly agc	
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gat Asp tct Ser ttg	gga Gly cca Pro	gaa Glu gca Ala tta	aca Thr gaa Glu 500 cag	agt Ser 485 cta Leu cca	470 gac Asp tct Ser gtt	caa Gln cct Pro	cag Gln act Thr	ttg Leu act Thr 505 tca	aat Asn 490 ctt Leu gaa	475 caa Gln tcc ser cct	agt Ser cct Pro	atg Met gtt Val	gac Asp aat Asn 510 tgg	aca Thr 495 cat His	480 ggc Gly agc Ser	
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gat Asp tct Ser ttg Leu ata Ile tca Ser 545	gga Gly cca Pro gat Asp gca Ala 530 cag Gln	gaa Glu gca Ala tta Leu 515 tat Tyr	aca Thr gaa Glu 500 cag Gln tat Tyr tca Ser	agt Ser 485 cta Leu cca Pro gaa Glu ctc Leu	470 gac Asp tct Ser gtt Val tta Leu act Thr 550	caa Gln cct Pro act Thr aat Asn 535 gta Val	cag Gln act Thr tac Tyr 520 cag Gln gat Asp	ttg Leu act Thr 505 tca Ser agg Arg	aat Asn 490 ctt Leu gaa Glu gtt Val ttt Phe	475 caa Gln tcc Ser cct Pro gga Gly aca Thr 555	agt Ser cct Pro gca Ala gaa Glu 540 gac Asp	atg Met gtt Val ttt Phe 525 acc Thr	gac Asp aat Asn 510 tgg Trp ttc Phe tca Ser	aca Thr 495 cat His Cys cat His	480 ggc Gly agc Ser tca Ser gca Ala tca Ser 560	1536 1584 1632 1680
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Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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170

105 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly 120

Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr

Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn

Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly 185 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu

135

150

100

125

175

140

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 Gly Leu Arg Ser Arg Ala Gln Ala Ser Asn Ser Thr Met Ser Ser Ile
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 Ser Ala Gly Gly Ser Gly Gly Ala Gly Gly Glu Gln Asn Gly Gln
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Glu Glu Lys Trp Cys Glu Lys Ala Val Lys Ser Leu Val Lys Lys Leu
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Lys Lys Thr Gly Arg Leu Asp Glu Leu Glu Lys Ala Ile Thr Thr Gln
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Asn Cys Asn Thr Lys Cys Val Thr Ile Pro Ser Thr Cys Ser Glu Ile
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Trp Gly Leu Ser Thr Pro Asn Thr Ile Asp Gln Trp Asp Thr Thr Gly
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Leu Tyr Ser Phe Ser Glu Gln Thr Arg Ser Leu Asp Gly Arg Leu Gln
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Val Ser His Arg Lys Gly Leu Pro His Val Ile Tyr Cys Arg Leu Trp
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Arg Trp Pro Asp Leu His Ser His His Glu Leu Lys Ala Ile Glu Asn
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Cys Glu Tyr Ala Phe Asn Leu Lys Lys Asp Glu Val Cys Val Asn Pro
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Tyr His Tyr Gln Arg Val Glu Thr Pro Val Leu Pro Pro Val Leu Val
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Pro Arg His Thr Glu Ile Leu Thr Glu Leu Pro Pro Leu Asp Asp Tyr
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                           440
Thr His Ser Ile Pro Glu Asn Thr Asn Phe Pro Ala Gly Ile Glu Pro
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Gln Ser Asn Tyr Ile Pro Glu Thr Pro Pro Pro Gly Tyr Ile Ser Glu
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Asp Gly Glu Thr Ser Asp Gln Gln Leu Asn Gln Ser Met Asp Thr Gly
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Ser Pro Ala Glu Leu Ser Pro Thr Thr Leu Ser Pro Val Asn His Ser
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Leu Asp Leu Gln Pro Val Thr Tyr Ser Glu Pro Ala Phe Trp Cys Ser
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Glu Arg Phe Cys Leu Gly Leu Leu Ser Asn Val Asn Arg Asn Ala Thr
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Val Glu Met Thr Arg Arg His Ile Gly Arg Gly Val Arg Leu Tyr Tyr
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Ile Gly Gly Glu Val Phe Ala Glu Cys Leu Ser Asp Ser Ala Ile Phe
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                           600
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Val Gln Ser Pro Asn Cys Asn Gln Arg Tyr Gly Trp His Pro Ala Thr
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                                           620
Val Cys Lys Ile Pro Pro Gly Cys Asn Leu Lys Ile Phe Asn Asn Gln
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                                      635
Glu Phe Ala Ala Leu Leu Ala Gln Ser Val Asn Gln Gly Phe Glu Ala
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Val Tyr Gln Leu Thr Arg Met Cys Thr Ile Arg Met Ser Phe Val Lys
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Gly Trp Gly Ala Glu Tyr Arg Arg Gln Thr Val Thr Ser Thr Pro Cys
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Trp Ile Glu Leu His Leu Asn Gly Pro Leu Gln Trp Leu Asp Lys Val
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gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                       96
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
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                                25
gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
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Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                            40
tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
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Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
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                                            60
ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
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Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
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                                        75
cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
                                                                      336
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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                                                    110
gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc
                                                                      384
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
        115
                            120
                                                125
atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac
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Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
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                                            140
aac tac aac agc cac aac gtc tat atc atg gcc gac aag cag aag aac
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
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ggc atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc
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Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
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gtg cag ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc
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Leu Thr Gln Met Gly Ser Pro Ser Val Arg Cys Ser Ser Met Ser

Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly

ccc	ata	cta	cta	ccc	gac	aac	cac	tac	ctq	agc	acc	caq	tcc	qcc	ctq	624
					Asp											
					gag Glu											672
		-	-		atc				-	-		_		_		720
Val 225	Thr	Ala	Ala	Gly	11e 230	Thr	Leu	Gly	Met	Asp 235	Glu	Leu	Tyr	Lys	Ser 240	
	ctc	aga	tct	cga	gct	caa	gct	tcg	aat	tcg	aat	tca	acc	atg	gac	768
-		_		245	Ala				250					255	-	
	_			-	aat				-		-	_	-	-	_	816
			260		Asn			265			-		270			
			_	_	atg Met	_		_					_	_		864
116	vai	275	ser	ьeu	мес	Cys	280	AIG	GIII	сту	СТУ	285	ser	GIU	IIIL	
	-		-	_	att	_	-	_	_	_	-	_	_			912
	290		_		Ile	295					300					
	_	_	_	_	tct Ser				_						_	960
305	АБР	GIU	ьeu	АЗР	310	пеп	TTE	1111	мта	315	1111	1111	ASII	СТУ	320	
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His	Pro	Ser	Lys	Cys 325	Val	Thr	Ile	Gln	Arg 330	Thr	Leu	Asp	Gly	Arg 335	Leu	
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GIN	vaı	Ата	340	Arg	Lys	GLY	Pne	345	HIS	vaı	ire	Tyr	350	Arg	Leu	
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-	370	_			Asp	375	_	_	_		380	_				1000
			-	-	gtt Val	-					_					1200
385	1113	T y T	oru	mrg	390	Val	JCI	110	OLY	395	2100	пси	501	Ory	400	
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					gga Gly											1296
vai	птѕ	Asp	420	GIU	GIY	GIII	PIO	425	пеп	ser	1111	GIU	430	птѕ	ser	
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IIe	Gin	Thr 435	lle	Gin	His	Pro	Pro 440	ser	Asn	Arg	Ala	Ser 445	Thr	Glu	Thr	
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	450				Leu	455					460					
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465	Ата	Asn	Pne	Pro	Asn 470	ire	Pro	vaı	АТА	5er 475	rnr	ser	GIN	Pro	480	
	ata	ctg	ggg	ggc	agc	cat	agt	gaa	gga		ttg	cag	ata	gca		1488
Ser	Ile	Leu	Gly	Gly 485	Ser	His	Ser	Glu	Gly 490	Leu	Leu	Gln	Ile	Ala 495	Ser	
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Gly	Pro	Gln	Pro 500	GLY	Gln	GLn	Gln	Asn 505	GLY	Phe	Thr	GLY	Gln 510	Pro	Ala	
act	tac	cat		aac	agc	act	acc		taa	act	gga	aqt		act	qca	1584
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		515					520					525				

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Pro	530	THE	Pro	ASII	ьеи	Pro 535	нта	HIS	GTII	ASII	540	птз	теп	GIII	пто		
cac		cct	ato	cca	CCC	cat	CCC	gga	cat	tac		cct	att	cac	aat	1	680
	-		_	_		His							_			_	
545					550	0		~- <i>1</i>		555					560		
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tgg	tgt	tcc	att	gct	tac	ttt	gaa	atg	gat	gtt	cag	gta	gga	gag	aca	1	776
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Asp		Ser	Gly	Gly	Asp	Arg	Phe	Cys	Leu	Gly		Leu	Ser	Asn	Val		
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vaı	GIII	ьeu	GIU	645	туѕ	Gly	GIU	СТА	650	var	rrp	vaı	Arg	655	ьeu		
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						Val										2	010
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aaa	cat	gca		aga	αat	gct	att		aaα	atc	tac	сса		gga	tat	2	064
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Ile	Lys	Val	Phe	Asp	Leu	Arg	Gln	Cys	His	Arg	Gln	Met	Gln	Gln	Gln		
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Gly	Asn	Ile	Pro	_	Pro	Gly	Ser	Val	_	Gly	Ile	Ala	Pro		Ile		
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						gga										2	256
Ser	ьeu	Ser	740	Ата	Ата	Gly	тте	745	vaı	Asp	Asp	Leu	750	Arg	Leu		
+ ~ ~	2+2	ata		2 t ~	20+	ttt	ata		~~~	+ ~ ~	~~~	000		+ 2.0	003	2	304
_				_	_	Phe						_	-			2	304
Cys	116	755	ALG	Mec	261	rne	760	цуз	Gry	ııp	OLY	765	пор	ryr	110		
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_	_	_			-	Thr		-			_					_	
5	770		-			775		2	-		780						
cgg		ctc	caq	ctc	cta	gac	gaa	gta	ctt	cat		atg	ccg	att	gca	2	400
	_		_			Ásp	-	_				_	-		_		
785					790	_				795					800		
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Gly Pro Gln Pro Gly Gln Gln Gln Asn Gly Phe Thr Gly Gln Pro Ala
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Pro Tyr Thr Pro Asn Leu Pro His His Gln Asn Gly His Leu Gln His
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His Pro Pro Met Pro Pro His Pro Gly His Tyr Trp Pro Val His Asn
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Glu Leu Ala Phe Gln Pro Pro Ile Ser Asn His Pro Ala Pro Glu Tyr
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Trp Cys Ser Ile Ala Tyr Phe Glu Met Asp Val Gln Val Gly Glu Thr
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Val Gln Leu Glu Cys Lys Gly Glu Gly Asp Val Trp Val Arg Cys Leu
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Gly Arg Ala Pro Gly Asp Ala Val His Lys Ile Tyr Pro Ser Ala Tyr
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Cys Ile Leu Arg Met Ser Phe Val Lys Gly Trp Gly Pro Asp Tyr Pro
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                                            765
Arg Gln Ser Ile Lys Glu Thr Pro Cys Trp Ile Glu Ile His Leu His
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gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                       96
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                 25
gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
                                                                      144
Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                            40
tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
                                                                      192
Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
                                             60
ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
                                                                      240
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
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cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
                                                                      288
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
                8.5
cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
                                                                      336
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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                               105
                                                    110
gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc
                                                                      384
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
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                                                125
atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac
                                                                      432
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
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                                            140
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
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                                                                      528
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
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gtg cag ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc
                                                                      576
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
                                185
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Pro Val Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
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Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
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                                            220
gtg acc gcc gcg ggg atc act ctc ggc atg gac gag ctg tac aag tcc
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Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
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gga ctc aga tct acc atg gcg ggc tgg atc cag gcc cag cag ctg cag
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Gly Leu Arg Ser Thr Met Ala Gly Trp Ile Gln Ala Gln Gln Leu Gln
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                                    250
gga gac gcg ctg cgc cag atg cag gtg ctg tac ggc cag cac ttc ccc
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Gly Asp Ala Leu Arg Gln Met Gln Val Leu Tyr Gly Gln His Phe Pro
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EGFP-Stat5 fusion

864

atc gag gtc cgg cac tac ttg gcc cag tgg att gag agc cag cca tgg

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	_			_	-	cag Gln		_	_	_	_				_	960
						tta Leu										1008
_	_		_			tat Tyr	-	_	_		-		_	-	_	1056
						tac Tyr										1104
						gct Ala 375										1152
						cag Gln										1200
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						gag Glu										1296
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	_	_	_	_		tct Ser 455	_		_		_	_	_	-		1392
Gln 465	Thr	Leu	Gln	Gln	Tyr 470	cgc Arg	Val	Glu	Leu	Ala 475	Glu	Lys	His	Gln	Lys 480	1440
Thr	Leu	Gln	Leu	Leu 485	Arg	aag Lys	Gln	Gln	Thr 490	Ile	Ile	Leu	Asp	Asp 495	Glu	1488
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Pro	Glu	Gly 515	Ser	Leu	Asp	gtg Val	Leu 520	Gln	Ser	Trp	Cys	Glu 525	Lys	Leu	Ala	1584
Glu	Ile 530	Ile	Trp	Gln	Asn	cgg Arg 535	Gln	Gln	Ile	Arg	Arg 540	Ala	Glu	His	Leu	1632
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						gac Asp										1728
						cct Pro										1776
						ctg Leu										1824
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												tgc Cys				1920
atc Ile	ctg Leu	aac Asn	aac Asn	tgc Cys 645	tgc Cys	gtg Val	atg Met	gag Glu	tac Tyr 650	cac His	caa Gln	gcc Ala	acg Thr	ggc Gly 655	acc Thr	1968
ctc Leu	agt Ser	gcc Ala	cac His 660	ttc Phe	agg Arg	aac Asn	atg Met	tca Ser 665	ctg Leu	aag Lys	agg Arg	atc Ile	aag Lys 670	cgt	gct Ala	2016
gac Asp	cgg Arg	cgg Arg 675	ggt Gly	gca Ala	gag Glu	tcc Ser	gtg Val 680	aca Thr	gag Glu	gag Glu	aag Lys	ttc Phe 685	aca Thr	gtc Val	ctg Leu	2064
Phe	Glu 690	Ser	Gln	Phe	Ser	Val 695	Gly	Ser	Asn	Glu	Leu 700	gtg Val	Phe	Gln	Val	2112
aag Lys 705	act Thr	ctg Leu	tcc Ser	cta Leu	cct Pro 710	gtg Val	gtt Val	gtc Val	atc Ile	gtc Val 715	cac His	ggc Gly	agc Ser	cag Gln	gac Asp 720	2160
His	Asn	Ala	Thr	Ala 725	Thr	Val	Leu	Trp	Asp 730	Asn	Ala	ttt Phe	Ala	Glu 735	Pro	2208
ggc Gly	agg Arg	gtg Val	cca Pro 740	ttt Phe	gcc Ala	gtg Val	cct Pro	gac Asp 745	aaa Lys	gtg Val	ctg Leu	tgg Trp	ccg Pro 750	cag Gln	ctg Leu	2256
Cys	Glu	Ala 755	Leu	Asn	Met	Lys	Phe 760	Lys	Ala	Glu	Val	cag Gln 765	Ser	Asn	Arg	2304
ggc Gly	ctg Leu 770	acc Thr	aag Lys	gag Glu	aac Asn	ctc Leu 775	gtg Val	ttc Phe	ctg Leu	gcg Ala	cag Gln 780	aaa Lys	ctg Leu	ttc Phe	aac Asn	2352
Asn 785	Ser	Ser	Ser	His	Leu 790	Glu	Asp	Tyr	Ser	Gly 795	Leu	tcc Ser	Val	Ser	Trp 800	2400
Ser	Gln	Phe	Asn	Arg 805	Glu	Asn	Leu	Pro	Gly 810	Trp	Asn	tac Tyr	Thr	Phe 815	Trp	2448
Gln	Trp	Phe	Asp 820	Gly	Val	Met	Glu	Val 825	Leu	Lys	Lys	cac His	His 830	Lys	Pro	2496
His	Trp	Asn 835	Asp	Gly	Ala	Ile	Leu 840	Gly	Phe	Val	Asn	aag Lys 845	Gln	Gln	Ala	2544
His	Asp 850	Leu	Leu	Ile	Asn	Lys 855	Pro	Asp	Gly	Thr	Phe 860	ttg Leu	Leu	Arg	Phe	2592
Ser 865	Asp	Ser	Glu	Ile	Gly 870	Gly	Ile	Thr	Ile	Ala 875	Trp	aag Lys	Phe	Asp	Ser 880	2640
Pro	Glu	Arg	Asn	Leu 885	Trp	Asn	Leu	Lys	Pro 890	Phe	Thr	acg Thr	Arg	Asp 895	Phe	2688
												agc Ser				2736
Tyr	Val	Phe 915	Pro	Asp	Arg	Pro	Lys 920	Asp	Glu	Val	Phe	tcc Ser 925	Lys	Tyr	Tyr	2784
act Thr	cct Pro 930	gtg Val	ctg Leu	gct Ala	aaa Lys	gct Ala 935	gtt Val	gat Asp	gga Gly	tat Tyr	gtg Val 940	aaa Lys	cca Pro	cag Gln	atc Ile	2832
aag	caa	gtg	gtc	cct	gag	ttt	gtg	aat	gca	tct	gca	gat	gct	ggg	ggc	2880

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Lys Gln Val Val Pro Glu Phe Val Asn Ala Ser Ala Asp Ala Gly Gly
                        950
                                                955
age age gee acg tac atg gae cag gee eee tee cea get gtg tge eee
                                                                                  2928
Ser Ser Ala Thr Tyr Met Asp Gln Ala Pro Ser Pro Ala Val Cys Pro
                   965
                                           970
cag gct ccc tat aac atg tac cca cag aac cct gac cat gta ctc gat
                                                                                  2976
Gln Ala Pro Tyr Asn Met Tyr Pro Gln Asn Pro Asp His Val Leu Asp
                                      985
cag gat gga gaa ttc gac ctg gat gag acc atg gat gtg gcc agg cac
                                                                                  3024
Gln Asp Gly Glu Phe Asp Leu Asp Glu Thr Met Asp Val Ala Arg His
                             1000
        995
                                                         1005
gtg gag gaa ctc tta cgc cga cca atg gac agt ctt gac tcc cgc Val Glu Leu Leu Arg Arg Pro Met Asp Ser Leu Asp Ser Arg
                                                                                  3069
    1010
                             1015
                                                      1020
ctc tcg ccc cct gcc ggt ctt ttc acc tct gcc aga \, ggc tcc ctc Leu Ser \, Pro \, Pro \, Ala \, Gly \, Leu \, Phe \, Thr \, Ser \, Ala \, Arg \, Gly \, Ser \, Leu
                                                                                  3114
 1025
                            1030
                                                       1035
tca tga
                                                                                  3120
Ser
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<211> 1039

<212> PRT

<213> Artificial Sequence

<220>

<223> EGFP-Stat5 fusion

Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu 10 Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly 25 Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile 40 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr 55 60 Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys 70 75 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu 8.5 90 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu 105 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly 120 Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr 135 140 Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn 150 155 Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser 165 170 175 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly 185 190 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu

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Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
            215
   210
Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
                   230
                                       235
Gly Leu Arg Ser Thr Met Ala Gly Trp Ile Gln Ala Gln Gln Leu Gln
                                   250
               245
Gly Asp Ala Leu Arg Gln Met Gln Val Leu Tyr Gly Gln His Phe Pro
                               265
Ile Glu Val Arg His Tyr Leu Ala Gln Trp Ile Glu Ser Gln Pro Trp
                           280
                                              285
Asp Ala Ile Asp Leu Asp Asn Pro Gln Asp Arg Ala Gln Ala Thr Gln
                      295
                                           300
Leu Leu Glu Gly Leu Val Gln Glu Leu Gln Lys Lys Ala Glu His Gln
                   310
                                       315
Val Gly Glu Asp Gly Phe Leu Leu Lys Ile Lys Leu Gly His Tyr Ala
                                                      335
                                   330
               325
Thr Gln Leu Gln Lys Thr Tyr Asp Arg Cys Pro Leu Glu Leu Val Arg
                              345
           340
Cys Ile Arg His Ile Leu Tyr Asn Glu Gln Arg Leu Val Arg Glu Ala
       355
                          360
                                           365
Asn Asn Cys Ser Ser Pro Ala Gly Ile Leu Val Asp Ala Met Ser Gln
                      375
Lys His Leu Gln Ile Asn Gln Thr Phe Glu Glu Leu Arg Leu Val Thr
                   390
                                       395
Gln Asp Thr Glu Asn Glu Leu Lys Lys Leu Gln Gln Thr Gln Glu Tyr
               405
                                   410
Phe Ile Ile Gln Tyr Gln Glu Ser Leu Arg Ile Gln Ala Gln Phe Ala
                               425
           420
                                                   430
Gln Leu Ala Gln Leu Ser Pro Gln Glu Arg Leu Ser Arg Glu Thr Ala
       435
                           440
                                              445
Leu Gln Gln Lys Gln Val Ser Leu Glu Ala Trp Leu Gln Arg Glu Ala
                       455
Gln Thr Leu Gln Gln Tyr Arg Val Glu Leu Ala Glu Lys His Gln Lys
                   470
                                       475
Thr Leu Gln Leu Leu Arg Lys Gln Gln Thr Ile Ile Leu Asp Asp Glu
                                   490
               485
Leu Ile Gln Trp Lys Arg Arg Gln Gln Leu Ala Gly Asn Gly Gly Pro
           500
                              505
Pro Glu Gly Ser Leu Asp Val Leu Gln Ser Trp Cys Glu Lys Leu Ala
                          520
       515
Glu Ile Ile Trp Gln Asn Arg Gln Gln Ile Arg Arg Ala Glu His Leu
                       535
                                           540
Cys Gln Gln Leu Pro Ile Pro Gly Pro Val Glu Glu Met Leu Ala Glu
                                       555
                   550
Val Asn Ala Thr Ile Thr Asp Ile Ile Ser Ala Leu Val Thr Ser Thr
               565
                                   570
Phe Ile Ile Glu Lys Gln Pro Pro Gln Val Leu Lys Thr Gln Thr Lys
                               585
           580
Phe Ala Ala Thr Val Arg Leu Leu Val Gly Gly Lys Leu Asn Val His
                           600
Met Asn Pro Pro Gln Val Lys Ala Thr Ile Ile Ser Glu Gln Gln Ala
                       615
                                           620
Lys Ser Leu Leu Lys Asn Glu Asn Thr Arg Asn Glu Cys Ser Gly Glu
                   630
                                       635
Ile Leu Asn Asn Cys Cys Val Met Glu Tyr His Gln Ala Thr Gly Thr
                                            655
               645
                                   650
Leu Ser Ala His Phe Arg Asn Met Ser Leu Lys Arg Ile Lys Arg Ala
          660
                               665
Asp Arg Arg Gly Ala Glu Ser Val Thr Glu Glu Lys Phe Thr Val Leu
                            680
                                               685
Phe Glu Ser Gln Phe Ser Val Gly Ser Asn Glu Leu Val Phe Gln Val .
                       695
Lys Thr Leu Ser Leu Pro Val Val Val Ile Val His Gly Ser Gln Asp
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705
                  710
His Asn Ala Thr Ala Thr Val Leu Trp Asp Asn Ala Phe Ala Glu Pro
              725
                                 730
Gly Arg Val Pro Phe Ala Val Pro Asp Lys Val Leu Trp Pro Gln Leu
                             745
Cys Glu Ala Leu Asn Met Lys Phe Lys Ala Glu Val Gln Ser Asn Arg
      755
                        760
                                            765
Gly Leu Thr Lys Glu Asn Leu Val Phe Leu Ala Gln Lys Leu Phe Asn
              775
                                        780
Asn Ser Ser Ser His Leu Glu Asp Tyr Ser Gly Leu Ser Val Ser Trp
                                     795
                  790
Ser Gln Phe Asn Arg Glu Asn Leu Pro Gly Trp Asn Tyr Thr Phe Trp
           805
                                 810
Gln Trp Phe Asp Gly Val Met Glu Val Leu Lys Lys His His Lys Pro
        820
                            825
His Trp Asn Asp Gly Ala Ile Leu Gly Phe Val Asn Lys Gln Gln Ala
     835
                        840
His Asp Leu Leu Ile Asn Lys Pro Asp Gly Thr Phe Leu Leu Arg Phe
          855
                                860
Ser Asp Ser Glu Ile Gly Gly Ile Thr Ile Ala Trp Lys Phe Asp Ser
                 870
                                     875
Pro Glu Arg Asn Leu Trp Asn Leu Lys Pro Phe Thr Thr Arg Asp Phe
              885
                                 890
Ser Ile Arg Ser Leu Ala Asp Arg Leu Gly Asp Leu Ser Tyr Leu Ile
                             905
Tyr Val Phe Pro Asp Arg Pro Lys Asp Glu Val Phe Ser Lys Tyr Tyr
                         920
                                            925
Thr Pro Val Leu Ala Lys Ala Val Asp Gly Tyr Val Lys Pro Gln Ile
                     935
                                       940
Lys Gln Val Val Pro Glu Phe Val Asn Ala Ser Ala Asp Ala Gly Gly
                  950
                                     955
Ser Ser Ala Thr Tyr Met Asp Gln Ala Pro Ser Pro Ala Val Cys Pro
            965 970
Gln Ala Pro Tyr Asn Met Tyr Pro Gln Asn Pro Asp His Val Leu Asp
                  985
          980
Gln Asp Gly Glu Phe Asp Leu Asp Glu Thr Met Asp Val Ala Arg His
     995
              1000
                                            1005
Val Glu Glu Leu Leu Arg Arg Pro Met Asp Ser Leu Asp Ser Arg
                      1015
                                         1020
Leu Ser Pro Pro Ala Gly Leu Phe Thr Ser Ala Arg Gly Ser Leu
                      1030
                                          1035
Ser
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<211> 1875

<212> DNA

<213> Artificial Sequence

<220>

<223> mERK1-F64L-S65T-GFP fusion

<220>

<221> CDS

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gga	act Thr								ccc					gtg		96
	Gly												ctg			144
	ggc Gly 50															192
Arg 65	aag Lys	Thr	Arg	Val	Ala 70	Ile	Lys	Lys	Ile	Ser 75	Pro	Phe	Glu	His	Gln 80	240
Thr	tac Tyr	Cys	Gln	Arg 85	Thr	Leu	Arg	Glu	Ile 90	Gln	Ile	Leu	Leu	Arg 95	Phe	288
Arg	cat His	Glu	Asn 100	Val	Ile	Gly	Ile	Arg 105	Asp	Ile	Leu	Arg	Ala 110	Pro	Thr	336
	gaa Glu															384
Asp	ctg Leu 130	Tyr	Lys	Leu	Leu	Lys 135	Ser	Gln	Gln	Leu	Ser 140	Asn	Asp	His	Ile	432
tgc Cys 145	tac Tyr	ttc Phe	ctc Leu	tac Tyr	cag Gln 150	atc Ile	ctc Leu	cgg Arg	ggc Gly	ctc Leu 155	aag Lys	tat Tyr	ata Ile	cac His	tca Ser 160	480
	aat Asn															528
	acc Thr				-		_	_			_	-			-	576
	cct Pro															624
_	tgg Trp 210		_	-				_				_				672
	tcc Ser															720
	aac Asn															768
	att Ile															816
	att Ile															864
	aag Lys 290		-		-	_						_			•	912
ctt	gac	ctg	ctg	gac	cgg	atg	tta	acc	ttc	aac	cca	aac	aag	cgc	atc	960

Leu 305	Asp	Leu	Leu	Asp	Arg 310	Met	Leu	Thr	Phe	Asn 315	Pro	Asn	Lys	Arg	Ile 320	
						gct Ala										1008
						gcc Ala										1056
						gag Glu										1104
						ggg Gly 375										1152
						ttc Phe										1200
	-		-	_		Gly ggg					-	_				1248
						gga Gly										1296
						cca Pro										1344
						tct Ser 455										1392
_			-	-	-	atg Met		-			_	_	-	_		1440
						Gly ggg										1488
	_		-			gtt Val		_							-	1536
						att Ile										1584
Asn	Ser 530	His	Asn	Val	Tyr	atc Ile 535	Met	Āla	Āsp	Lys	Pro 540	Lys	Asn	Gly	Ile	1632
Lys 545	Val	Asn	Phe	Lys	Ile 550	aga Arg	His	Asn	Ile	Lys 555	Asp	Gly	Ser	Val	Gln 560	1680
						caa Gln										1728
						tac Tyr										1776
						gat Asp										1824
_	_					ggc Gly 615	_	-	_					_		1872
taa																1875

<211> 624

<212> PRT

<213> Artificial Sequence

<220>

<223> mERK1-F64L-S65T-GFP fusion

<400> 57

Met Ala Ala Ala Ala Ala Pro Gly Gly Gly Gly Glu Pro Arg 10 Gly Thr Ala Gly Val Val Pro Val Val Pro Gly Glu Val Glu Val Val 20 25 Lys Gly Gln Pro Phe Asp Val Gly Pro Arg Tyr Thr Gln Leu Gln Tyr 40 4.5 Ile Gly Glu Gly Ala Tyr Gly Met Val Ser Ser Ala Tyr Asp His Val 55 Arg Lys Thr Arg Val Ala Ile Lys Lys Ile Ser Pro Phe Glu His Gln 70 75 Thr Tyr Cys Gln Arg Thr Leu Arg Glu Ile Gln Ile Leu Leu Arg Phe 85 90 Arg His Glu Asn Val Ile Gly Ile Arg Asp Ile Leu Arg Ala Pro Thr 100 105 Leu Glu Ala Met Arg Asp Val Tyr Ile Val Gln Asp Leu Met Glu Thr 120 Asp Leu Tyr Lys Leu Leu Lys Ser Gln Gln Leu Ser Asn Asp His Ile 135 140 Cys Tyr Phe Leu Tyr Gln Ile Leu Arg Gly Leu Lys Tyr Ile His Ser 150 155 Ala Asn Val Leu His Arg Asp Leu Lys Pro Ser Asn Leu Leu Ile Asn 165 170 Thr Thr Cys Asp Leu Lys Ile Cys Asp Phe Gly Leu Ala Arg Ile Ala 185 190 Asp Pro Glu His Asp His Thr Gly Phe Leu Thr Glu Tyr Val Ala Thr 195 200 Arg Trp Tyr Arg Ala Pro Glu Ile Met Leu Asn Ser Lys Gly Tyr Thr 215 220 Lys Ser'Ile Asp Ile Trp Ser Val Gly Cys Ile Leu Ala Glu Met Leu 230 235 Ser Asn Arg Pro Ile Phe Pro Gly Lys His Tyr Leu Asp Gln Leu Asn 245 250 His Ile Leu Gly Ile Leu Gly Ser Pro Ser Gln Glu Asp Leu Asn Cys 265 Ile Ile Asn Met Lys Ala Arg Asn Tyr Leu Gln Ser Leu Pro Ser Lys 280 285 Thr Lys Val Ala Trp Ala Lys Leu Phe Pro Lys Ser Asp Ser Lys Ala 295 300 Leu Asp Leu Leu Asp Arg Met Leu Thr Phe Asn Pro Asn Lys Arg Ile 310 315 Thr Val Glu Glu Ala Leu Ala His Pro Tyr Leu Glu Gln Tyr Tyr Asp 330 Pro Thr Asp Glu Pro Val Ala Glu Glu Pro Phe Thr Phe Asp Met Glu 340 345 Leu Asp Asp Leu Pro Lys Glu Arg Leu Lys Glu Leu Ile Phe Gln Glu 360

Thr Ala Arg Phe Gln Pro Gly Ala Pro Glu Gly Pro Gly Arg Ala Met 375 Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu 390 395 Leu Asp Gly Asp Val Asn Gly Gln Lys Phe Ser Val Ser Gly Glu Gly 410 Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr 420 425 Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr 435 440 445 Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His 450 455 460 Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr 470 475 Ile Phe Tyr Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys 485 490 Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp 500 505 Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Met Glu Tyr Asn Tyr 520 525 Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Pro Lys Asn Gly Ile 535 Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp Gly Ser Val Gln 550 555 Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val 570 Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys 580 585 Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu Glu Phe Val Thr 600 605 Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys Pro Gln Glu 615 <210> 58 <211> 1815 <212> DNA <213> Artificial Sequence <220> <223> Erk2-EGFP fusion <220> <221> CDS <222> (1)..(1812) <400> 58 atg gcg gcg gcg gcg gcg ggc ccg gag atg gtc cgc ggg cag gtg 48 Met Ala Ala Ala Ala Ala Gly Pro Glu Met Val Arg Gly Gln Val 10 ttc gac gtg ggg ccg cgc tac act aat ctc tcg tac atc gga gaa ggc 96 Phe Asp Val Gly Pro Arg Tyr Thr Asn Leu Ser Tyr Ile Gly Glu Gly

													aaa Lys			144
													tac Tyr			192
	acc												cat His			240
					_				-				gag Glu	_	_	288
													ctt Leu 110			336
													tat Tyr			384
	_		_	_			_					-	aat Asn	-	_	432
	_	_		_					-	_			act Thr	_	-	480
													cca Pro			528
													tgg Trp 190			576
_		_		_	-			_				_	tcc Ser		-	624
													aac Asn			672
	ttc			_				_	_	_			atc Ile	-		720
													ata Ile			768
													aag Lys 270			816
													gat Asp			864
													gtt Val			912
_	_	_		-		_		_			_		agt Ser	-		960
													gac Asp			1008
			-			_				_			gct Ala 350	_		1056
_				_		-	-		_	-	_		atg Met		-	1104

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aaq ggc gag gag ctg ttc acc ggg gtg gtg ccc atc ctg gtc gag ctg
                                                                     1152
Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu
                        375
gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc gag ggc gag
                                                                     1200
Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu
                                         395
                    390
385
ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc tgc acc acc
                                                                     1248
Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr
                405
                                     410
ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc ctg acc tac
                                                                     1296
Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr
                                 425
                                                                     1344
ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag cag cac gac
Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp
                            440
                                                445
                                                                     1392
ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag cgc acc atc
Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile
                                             460
                        455
                                                                     1440
ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag gtg aag ttc
Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe
                                        475
                    470
gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc atc gac ttc
                                                                     1488
Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe
                                     490
                485
                                                                     1536
aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac aac tac aac
Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn
                                 505
            500
agc cac aac gtc tat atc atg gcc gac aag cag aag aac ggc atc aag
                                                                     1584
Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys
                             520
                                                 525
        515
                                                                     1632
gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc gtg cag ctc
Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu
                         535
gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc ccc gtg ctg
                                                                     1680
Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu
                                        555
                    550
ctg ccc gac aac cac tac ctg agc acc cag tcc gcc ctg agc aaa gac
                                                                     1728
Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp
                565
                                     570
                                                         575
ccc aac gag aag cgc gat cac atg gtc ctg ctg gag ttc gtg acc gcc
                                                                     1776
Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala
            580
                                 585
gcc ggg atc act ctc ggc atg gac gag ctg tac aag taa
                                                                     1815
Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
         595
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<211> 604

<212> PRT

<213> Artificial Sequence

<220>

<223> Erk2-EGFP fusion

<400> 59 Met Ala Ala Ala Ala Ala Gly Pro Glu Met Val Arg Gly Gln Val

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           20
Ala Tyr Gly Met Val Cys Ser Ala Tyr Asp Asn Leu Asn Lys Val Arg
                           40
Val Ala Ile Lys Lys Ile Ser Pro Phe Glu His Gln Thr Tyr Cys Gln
                      55
Arg Thr Leu Arg Glu Ile Lys Ile Leu Leu Arg Phe Arg His Glu Asn
                                       75
                  70
Ile Ile Gly Ile Asn Asp Ile Ile Arg Ala Pro Thr Ile Glu Gln Met
                                   90
Lys Asp Val Tyr Ile Val Gln Asp Leu Met Glu Thr Asp Leu Tyr Lys
                               105
           100
Leu Leu Lys Thr Gln His Leu Ser Asn Asp His Ile Cys Tyr Phe Leu
                           120
                                              125
        115
Tyr Gln Ile Leu Arg Gly Leu Lys Tyr Ile His Ser Ala Asn Val Leu
                      135
                                           140
His Arg Asp Leu Lys Pro Ser Asn Leu Leu Leu Asn Thr Thr Cys Asp
                                       155
                   150
Leu Lys Ile Cys Asp Phe Gly Leu Ala Arg Val Ala Asp Pro Asp His
                                   170
               165
Asp His Thr Gly Phe Leu Thr Glu Tyr Val Ala Thr Arg Trp Tyr Arg
                              185
           180
Ala Pro Glu Ile Met Leu Asn Ser Lys Gly Tyr Thr Lys Ser Ile Asp
                                       205
                           200
Ile Trp Ser Val Gly Cys Ile Leu Ala Glu Met Leu Ser Asn Arg Pro
            215
Ile Phe Pro Gly Lys His Tyr Leu Asp Gln Leu Asn His Ile Leu Gly
                                       235
225 . 230
Ile Leu Gly Ser Pro Ser Gln Glu Asp Leu Asn Cys Ile Ile Asn Leu
                                    250
                245
Lys Ala Arg Asn Tyr Leu Leu Ser Leu Pro His Lys Asn Lys Val Pro
                                265
            260
Trp Asn Arg Leu Phe Pro Asn Ala Asp Ser Lys Ala Leu Asp Leu Leu
                                               285
                           280
Asp Lys Met Leu Thr Phe Asn Pro His Lys Arg Ile Glu Val Glu Gln
                                            300
                       295
Ala Leu Ala His Pro Tyr Leu Glu Gln Tyr Tyr Asp Pro Ser Asp Glu
                                       315
                    310
Pro Ile Ala Glu Ala Pro Phe Lys Phe Asp Met Glu Leu Asp Asp Leu
                                   330
               325
Pro Lys Glu Lys Leu Lys Glu Leu Ile Phe Glu Glu Thr Ala Arg Phe
                               345
Gln Pro Gly Tyr Arg Ser Met Asp Pro Pro Val Ala Thr Met Val Ser
                            360
        355
Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu
                        375
                                            380
 Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu
                                        395
                    390
 Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr
                                    410
                                                        415
                405
 Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr
                                425
 Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp
                            440
        435
 Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile
                                            460
                        455
 Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe
                                        475
                   470
 Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe
                485
                                    490
 Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn
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Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys 515 520 525 Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu 535 540 Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu 550 555 Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp 565 570 Pro Asn Glu Lys Arg Asp His Met Val Leu Glu Phe Val Thr Ala 585 Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys 600 <210> 60 2511 <211> <212> DNA <213> Artificial Sequence <220> <223> Grk5-EGFP fusion <220> <221> CDS <222> (1)..(2508) <400> 60 atg gag ctg gaa aac atc gtg gcc aac acg gtc ttg ctg aaa gcc agg 48 Met Glu Leu Glu Asn Ile Val Ala Asn Thr Val Leu Leu Lys Ala Arg 5 10 96 Glu Gly Gly Gly Lys Arg Lys Gly Lys Ser Lys Lys Trp Lys Glu 25 atc ctg aag ttc cct cac att agc cag tgt gaa gac ctc cga agg acc 144 Ile Leu Lys Phe Pro His Ile Ser Gln Cys Glu Asp Leu Arg Arg Thr 35 40 ata qac aga gat tac tgc agt tta tgt gac aag cag cca atc ggg agg 192 Ile Asp Arg Asp Tyr Cys Ser Leu Cys Asp Lys Gln Pro Ile Gly Arg 60 55 240 ctg ctt ttc cgg cag ttt tgt gaa acc agg cct ggg ctg gag tgt tac Leu Leu Phe Arg Gln Phe Cys Glu Thr Arg Pro Gly Leu Glu Cys Tyr 75 8.0 att cag ttc ctg gac tcc gtg gca gaa tat gaa gtt act cca gat gaa 288 Ile Gln Phe Leu Asp Ser Val Ala Glu Tyr Glu Val Thr Pro Asp Glu 90 8.5 aaa ctg gga gag aaa ggg aag gaa att atg acc aag tac ctc acc cca 336 Lys Leu Gly Glu Lys Gly Lys Glu Ile Met Thr Lys Tyr Leu Thr Pro 105 100 aag toe oot gtt tte ata gee caa gtt gge caa gae etg gte tee cag 384 Lys Ser Pro Val Phe Ile Ala Gln Val Gly Gln Asp Leu Val Ser Gln 120 125 115 acg gag gag aag ctc cta cag aag ccg tgc aaa gaa ctc ttt tct gcc 432

Thr Glu Glu Lys Leu Gln Lys Pro Cys Lys Glu Leu Phe Ser Ala

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	130					135					140					400
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Cys	Ala	Gln	Ser	Val	His	Glu	Tyr	Leu	Arg	Gly	Glu	Pro	Phe	His	Glu	
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	_	_	-	_			_	_			Gln		-		_	
-1-				165				9	170				-1-	175		
~~~	200		000		3.00	222	220	20+		200	cag	+ > +	943		at a	576
_			_								-		_			370
GIU	Arg	Gin		val	Tnr	ьуs	Asn		Pne	Arg	Gln	Tyr	-	vaı	ьeu	
			180					185					190			
gga	aaa	ggg	ggc	ttc	ggg	gag	gtc	tgt	gcc	tgc	cag	gtt	cgg	gcc	acg	624
Gly	Lys	Gly	Gly	Phe	Gly	Glu	Val	Cys	Ala	Cys	Gln	Val	Arq	Ala	Thr	
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Gry	_	Mec	TYL	лта	Cys	_	Arg	пеа	GIU	пуз	_	ALG	116	цуз	цуз	
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Arg	Lys	Gly	Glu	Ser	Met	Ala	Leu	Asn	Glu	Lys	Gln	Ile	Leu	Glu	Lys	
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Asp	Ala	Leu	Cys	Leu	Val	Leu	Thr	Ile	Met	Asn	Gly	Gly	Asp	Leu	Lys	
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1110	1115	275	- y -	11011	1100	O±y	280	110	O± y	1110	Olu	285	Ciu	111.9	711a	
						_ +										010
_				-				_			gaa	_			_	912
Leu	Phe	Tyr	Ala	Ala	Glu	Ile	Leu	Cys	Gly	Leu	Glu	Asp	Leu	His	Arg	
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gag	aac	acc	gtc	tac	cga	gat	ctg	aaa	cct	gaa	aac	atc	ctg	tta	gat	960
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305				- 4 -	310					315					320	
	+ - +	999	020	2++		ato	+ 02	~~~	cta		ttg	act	ata	224		1008
_								_	_		_	_		_		1000
Asp	Tyr	GTÀ	HIS		Arg	тте	ser	Asp		GTA	Leu	Ата	vaı	-	тте	
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CCC	gag	gga	gac	ctg	atc	cgc	ggc	cgg	gtg	ggc	act	gtt	ggc	tac	atg	1056
Pro	Glu	Gly	Asp	Leu	Ile	Arg	Gly	Arg	Val	Gly	Thr	Val	Gly	Tyr	Met	
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acc	ccc	gaa	atc	cta	aac	aac	caσ	agg	tac	aac	ctg	agc	ccc	gac	tac	1104
_		-	-	_			_				Leu	-		_		1101
пта	110		vai	пси	11311	11011		nrg	- A -	OLY	Бец		110	пор	ı yı	
		355				_	360			_		365				
											gag					1152
\mathtt{Trp}	Gly	Leu	Gly	Cys	Leu	Ile	Tyr	Glu	Met	Ile	Glu	Gly	Gln	Ser	Pro	
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											Glu					
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	~+~	~~~		~~~		~+~	+	+~~	0.0		++~	+ 00	~~~	a.a		1240
-	-									_	ttc				_	1248
Val	Leu	Glu	Thr		GLU	vai	Tyr	Ser		rys	Phe	Ser	Glu		Ala	
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Lvs	Ser	Ile	Cys	Lys	Met	Leu	Leu	Thr	Lys	Asp	Ala	Lys	Gln	Arq	Leu	
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~~~	+ ~ ~	C24		~~~	~~~	act	ac a		a+c	224	aga	Cac		++0	++0	1344
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GIY	Cys		GIU	GIU	GIY	Ala		GIU	vai	гÀг	Arg		Pro	Pne	Pne	
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Arg	Asn	Met	Asn	Phe	Lys	Arg	Leu	Glu	Ala	Gly	Met	Leu	Asp	Pro	Pro	
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ttc		gga	gac	ccc	cac		ata	tac	tat	aaσ	gac	ata	cta	gac	atc	1440
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- 116	, u <u> </u>	-10	p	-10	9		, 41	- <u>1</u> -	درد	-73		, 41	cu	sp		

465					470					475					400	
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шр		- 1 -	500	_,_		501	1111	505		V 44 1	JCI	116	510	тър	G111	
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110	530	CIY	1111	БСи	110	535	АЗР	Бец	ASII	ALG	540	птэ	FIU	PIO	GIU	
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545	110	цуз	цуз	Gry	550	цец	GIII	AIG	ьeu	555	пλа	Arg	GIII	HIS		
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Aen	Aen	Sor	Tue	Sor	Ser	Dro	cor	505	T	Th.	Com	Dha	aac	Cac	Cac	1728
ASII	ASII	Ser	цуз	565	Ser	FIO	ser	Ser	БуS 570	1111	ser	Pne	ASII		HIS	
2+2	220	+ 0 3	220		at a	200	+ ~~	222			~~~			575		1776
Tlo	Acn	Sor	7 an	Uic	gtc Val	cox	cos	aac	Com	mb-	gga	age	agc	agg	gat	1776
116	ASII	261	580	nis	vaı	ser	ser		ser	Inr	стА	ser		Arg	Asp	
000	000	a+ a			a+~	~+~		585					590			1004
Dro	Dro	y.c.	710	mb =	atg	gra	age	aag	ggc	gag	gag	CEG	TEC	acc	ggg	1824
PIO	PLO	595	Ата	Thr	Met	vaı		ьys	СТУ	GIU	GLu		Phe	Thr	GTA	
~+~	~+~		- + -	~+~			600					605				
y Lg	yrg val	Dwo	Tla	Tou	gtc	gag	ctg	gac	ggc	gac	gta	aac	ggc	cac	aag	1872
vai	610	PIO	тте	ьеи	Val		ьец	Asp	ста	Asp		Asn	сту	HIS	ràs	
++-		~+~	+	~~-	~~~	615					620					
Pho	age	gra	Con	ggc	gag	ggc	gag	ggc	gat	gcc	acc	tac	ggc	aag	ctg	1920
	ser	var	ser	GIA	Glu	GIY	GIU	GTA	Asp		Thr	Tyr	GLY	Lys		
625	~+~			_ 4 _	630					635					640	
mb	CLG	aag	Dha	atc	tgc	acc	acc	ggc	aag	ctg	ccc	gtg	ccc	tgg	ccc	1968
THE	ьeu	гда	Pne		Cys	Thr	Thr	СТА		Leu	Pro	vaı	Pro		Pro	
200	ata	~+~		645	~+~				650					655		0016
Thr.	LOU	g Lg	mb~	mb =	ctg	acc	Tac	gge	gtg	cag	tgc	TTC	agc	cgc	tac	2016
TIIL	ьеи	val	660	THE	Leu	III	Tyr	665	vaı	GIN	Cys	Pne		Arg	Tyr	
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Pro	yac Nen	uic	Mot	Tire	cag Gln	Udc	yac	Dha	Dha	aag	C	gee	atg	CCC	gaa	2064
110	дор	675	Mec	цуз	GIII	nis	680	File	Pile	гуз	ser	685	Met	Pro	GIU	
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Glv	Tur	Val	Gln	Glu	Arg	Thr	Tla	Dho	Dho	Tuc	yac Nan	yac Nan	ggc	Aac Aan	T	2112
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cac	aan	cta	ααα		aac	tac	220	200		220	at c	+ = +	ato		aaa	2256
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					Val											2352
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CCC		aac	gac	aac	ccc		cta	cta	ccc	asc		Cac	tac	cta	200	2400
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785	110	O T Y	112P	O T Y	790	Val	ыси	Leu	110	795	non	1172	тАт	пеп	800	
	car	tcc	acc	cta	agc	222	asc.	ccc	220		227	000	as+	020		2440
					Ser											2448
	·		a	cu	~~x	د ړ ــ	1125	-10	11011	JLU	пys	$\alpha$ r $\alpha$	ush	1172	1-1C C	

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805
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gag ctg tac aag taa
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Ile Asp Arg Asp Tyr Cys Ser Leu Cys Asp Lys Gln Pro Ile Gly Arg
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Leu Leu Phe Arg Gln Phe Cys Glu Thr Arg Pro Gly Leu Glu Cys Tyr
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Ile Gln Phe Leu Asp Ser Val Ala Glu Tyr Glu Val Thr Pro Asp Glu
Lys Leu Gly Glu Lys Gly Lys Glu Ile Met Thr Lys Tyr Leu Thr Pro
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Lys Ser Pro Val Phe Ile Ala Gln Val Gly Gln Asp Leu Val Ser Gln
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Thr Glu Glu Lys Leu Leu Gln Lys Pro Cys Lys Glu Leu Phe Ser Ala
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Cys Ala Gln Ser Val His Glu Tyr Leu Arg Gly Glu Pro Phe His Glu
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                                       155
Tyr Leu Asp Ser Met Phe Phe Asp Arg Phe Leu Gln Trp Lys Trp Leu
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Glu Arg Gln Pro Val Thr Lys Asn Thr Phe Arg Gln Tyr Arg Val Leu
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Gly Lys Gly Gly Phe Gly Glu Val Cys Ala Cys Gln Val Arg Ala Thr
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Gly Lys Met Tyr Ala Cys Lys Arg Leu Glu Lys Lys Arg Ile Lys Lys
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Arg Lys Gly Glu Ser Met Ala Leu Asn Glu Lys Gln Ile Leu Glu Lys
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Val Asn Ser Gln Phe Val Val Asn Leu Ala Tyr Ala Tyr Glu Thr Lys
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                                    250
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Asp Ala Leu Cys Leu Val Leu Thr Ile Met Asn Gly Gly Asp Leu Lys
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Phe His Ile Tyr Asn Met Gly Asn Pro Gly Phe Glu Glu Glu Arg Ala
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Leu Phe Tyr Ala Ala Glu Ile Leu Cys Gly Leu Glu Asp Leu His Arg
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Glu Asn Thr Val Tyr Arg Asp Leu Lys Pro Glu Asn Ile Leu Leu Asp

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Pro Glu Gly Asp Leu Ile Arg Gly Arg Val Gly Thr Val Gly Tyr Met
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Ala Pro Glu Val Leu Asn Asn Gln Arg Tyr Gly Leu Ser Pro Asp Tyr
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Trp Gly Leu Gly Cys Leu Ile Tyr Glu Met Ile Glu Gly Gln Ser Pro
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Phe Arg Gly Arg Lys Glu Lys Val Lys Arg Glu Glu Val Asp Arg Arg
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Val Leu Glu Thr Glu Glu Val Tyr Ser His Lys Phe Ser Glu Glu Ala
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Lys Ser Ile Cys Lys Met Leu Leu Thr Lys Asp Ala Lys Gln Arg Leu
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Gly Cys Gln Glu Gly Ala Ala Glu Val Lys Arg His Pro Phe Phe
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Phe Val Pro Asp Pro Arg Ala Val Tyr Cys Lys Asp Val Leu Asp Ile
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Glu Gln Phe Ser Thr Val Lys Gly Val Asn Leu Asp His Thr Asp Asp
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Asp Phe Tyr Ser Lys Phe Ser Thr Gly Ser Val Ser Ile Pro Trp Gln
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Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly
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Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys
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                                          620
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Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu
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His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala
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Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser
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gat tot aca tto aca gto otg aaa oga tat cag aat tta aaa oot ata
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Asp Ser Thr Phe Thr Val Leu Lys Arg Tyr Gln Asn Leu Lys Pro Ile
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                                                45
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                                                                      192
Glu Arg Asn Val Ala Ile Lys Lys Leu Ser Arg Pro Phe Gln Asn Gln
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Thr His Ala Lys Arg Ala Tyr Arg Glu Leu Val Leu Met Lys Cys Val
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Asn His Lys Asn Ile Ile Gly Leu Leu Asn Val Phe Thr Pro Gln Lys
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tcc cta gaa gaa ttt caa gat gtt tac ata gtc atg gag ctc atg gat
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Ser Leu Glu Glu Phe Gln Asp Val Tyr Ile Val Met Glu Leu Met Asp
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gca aat ctt tgc caa gtg att cag atg gag cta gat cat gaa aga atg
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Ala Asn Leu Cys Gln Val Ile Gln Met Glu Leu Asp His Glu Arq Met
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Ser Tyr Leu Leu Tyr Gln Met Leu Cys Gly Ile Lys His Leu His Ser
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                                            140
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Ser Asp Cys Thr Leu Lys Ile Leu Asp Phe Gly Leu Ala Arg Thr Ala
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		Phe	cct	_	_		Phe	cca	-	-		Glu	cac His			864
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-	-						_	_	_	_			cac His	_		960
		_		Tyr	_			_	Ala	-	_		cca Pro	Pro	_	1008
atc	cct	gac	aag	325 cag	tta	gat	gaa	agg	330	cac	aca	ata	gaa	335	taa	1056
Ile	Pro	Asp	Lys 340	Gln	Leu	Asp	Glu	Arg 345	Glu	His	Thr	Ile	Glu 350	Glu	Trp	2000
													aga Arg			1104
		_				-					-	_	gtg Val	_	-	1152
					Ala								gag Glu		Phe	1200
	ggg	gtg	gtg	ccc	390 atc	ctg	gtc	gag	ctg		ggc	gac	gta	aac	400 ggc	1248
Thr	Gly	Val	Val	Pro 405	Ile	Leu	Val	Glu	Leu 410	Asp	Gly	Asp	Val	Asn 415	Gly	
													Thr 430			1296
_	_	Thr	_	_			Cys				_	Leu	ccc Pro			1344
taa	ccc	435 acc	ctc	ata	acc	acc	440 cta	acc	tac	aac	ata	445 cag	tgc	ttc	agc	1392
Trp	Pro 450	Thr	Leu	Val	Thr	Thr 455	Leu	Thr	туr	Gly	Val 460	Gln	Cys	Phe	Ser	
													tcc Ser			1440
ccc					cag					ttc			gac Asp		ggc	1488
				cgc					ttc				acc Thr 510	ctg		1536
aac	cgc	atc		ctg	aag	ggc	atc		ttc	aag	gag	gac	ggc	aac	atc	1584

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Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile
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                           520
                                  525
ctg ggg cac aag ctg gag tac aac tac aac agc cac aac gtc tat atc
                                                                    1632
Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile
                       535
                                            540
atg gcc gac aag cag aag aac ggc atc aag gtg aac ttc aag atc cgc
                                                                    1680
Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg
                    550
                                       555
cac aac atc gag gac ggc agc gtg cag ctc gcc gac cac tac cag cag
                                                                    1728
His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln
               565
                                   570
aac acc ccc atc ggc gac ggc ccc gtg ctg ctg ccc gac aac cac tac
                                                                    1776
Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr
                               585
ctg agc acc cag tcc gcc ctg agc aaa gac ccc aac gag aag cgc gat
                                                                    1824
Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp
                           600
                                              605
cac atg gtc ctg ctg gag ttc gtg acc gcc gcc ggg atc act ctc ggc
                                                                    1872
His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly
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atg gac gag ctg tac aag taa
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Met Asp Glu Leu Tyr Lys
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<211> 630

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<213> Artificial Sequence

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<223> Jnk1-EGFP Fusion

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```
Gly Thr Ser Phe Met Met Thr Pro Tyr Val Val Thr Arg Tyr Tyr Arg
                    185
                                       190
Ala Pro Glu Val Ile Leu Gly Met Gly Tyr Lys Glu Asn Val Asp Leu
       195
                           200
Trp Ser Val Gly Cys Ile Met Gly Glu Met Val Cys His Lys Ile Leu
                      215
                                          220
Phe Pro Gly Arg Asp Tyr Ile Asp Gln Trp Asn Lys Val Ile Glu Gln
                  230
                                     235
Leu Gly Thr Pro Cys Pro Glu Phe Met Lys Lys Leu Gln Pro Thr Val
              245
                                  250
Arg Thr Tyr Val Glu Asn Arg Pro Lys Tyr Ala Gly Tyr Ser Phe Glu
                              265
                                                  270
Lys Leu Phe Pro Asp Val Leu Phe Pro Ala Asp Ser Glu His Asn Lys
      275
                          280
                                             285
Leu Lys Ala Ser Gln Ala Arg Asp Leu Leu Ser Lys Met Leu Val Ile
                    295
                                300
Asp Ala Ser Lys Arg Ile Ser Val Asp Glu Ala Leu Gln His Pro Tyr
                  310
                                     315
Ile Asn Val Trp Tyr Asp Pro Ser Glu Ala Glu Ala Pro Pro Pro Lys
                       330
              325
Ile Pro Asp Lys Gln Leu Asp Glu Arg Glu His Thr Ile Glu Glu Trp
           340
                              345
Lys Glu Leu Ile Tyr Lys Glu Val Met Asp Leu Glu Glu Arg Thr Lys
       355
                           360
                                              365
Asn Gly Val Ile Arg Gly Gln Pro Ser Pro Leu Ala Gln Val Gln Gln
                       375
                                          380
Trp Asp Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu Phe
                   390
                                      395
Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly
              405
                                  410
His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly
           420
                              425
Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro
                         440
                                             445
Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser
                     455
                                          460
Arg Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met
                  470
                                     475
Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly
               485
                                  490
Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val
           500
                              505
Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile
                          520
Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile
                      535
                                         540
Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg
                                     555
                  550
His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln
               565
                                  570
Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Pro Asp Asn His Tyr
          580
                            585
Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp
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His Met Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly
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Met Asp Glu Leu Tyr Lys
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atc tgg gag gtg ccc gag cgt tac cag aac ctg tct cca gtg ggc tct
                                                                       96
Ile Trp Glu Val Pro Glu Arg Tyr Gln Asn Leu Ser Pro Val Gly Ser
ggc gcc tat ggc tct gtg tgt gct gct ttt gac aca aaa acg ggg tta
                                                                      144.
Gly Ala Tyr Gly Ser Val Cys Ala Ala Phe Asp Thr Lys Thr Gly Leu
                            40
                                               45
cgt gtg gca gtg aag aag ctc tcc aga cca ttt cag tcc atc att cat
                                                                      192
Arg Val Ala Val Lys Lys Leu Ser Arg Pro Phe Gln Ser Ile Ile His
                        55
gcg aaa aga acc tac aga gaa ctg cgg tta ctt aaa cat atg aaa cat
                                                                      240
Ala Lys Arg Thr Tyr Arg Glu Leu Arg Leu Leu Lys His Met Lys His
                                        75
gaa aat gtg att ggt ctg ttg gac gtt ttt aca cct gca agg tct ctg
                                                                      288
Glu Asn Val Ile Gly Leu Leu Asp Val Phe Thr Pro Ala Arg Ser Leu
                8.5
                                    90
gag gaa ttc aat gat gtg tat ctg gtg acc cat ctc atg ggg gca gat
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Glu Glu Phe Asn Asp Val Tyr Leu Val Thr His Leu Met Gly Ala Asp
            100
                                105
                                                     110
ctg aac aac att gtg aaa tgt cag aag ctt aca gat gac cat gtt cag
                                                                      384
Leu Asn Asn Ile Val Lys Cys Gln Lys Leu Thr Asp Asp His Val Gln
                            120
ttc ctt atc tac caa att ctc cga ggt cta aag tat ata cat tca qct
                                                                      432
Phe Leu Ile Tyr Gln Ile Leu Arg Gly Leu Lys Tyr Ile His Ser Ala
                        135
                                            140
gac ata att cac agg gac cta aaa cct agt aat cta gct gtg aat gaa
                                                                      480
Asp Ile Ile His Arg Asp Leu Lys Pro Ser Asn Leu Ala Val Asn Glu
                    150
                                        155
gac tgt gag ctg aag att ctg gat ttt gga ctg gct cgg cac aca gat
                                                                      528
Asp Cys Glu Leu Lys Ile Leu Asp Phe Gly Leu Ala Arg His Thr Asp
               165
                                    170
gat gaa atg aca ggc tac gtg gcc act agg tgg tac agg gct cct gag
                                                                      576
Asp Glu Met Thr Gly Tyr Val Ala Thr Arg Trp Tyr Arg Ala Pro Glu
            180
                                185
atc atg ctg aac tgg atg cat tac aac cag aca gtt gat att tgg tca
                                                                      624
Ile Met Leu Asn Trp Met His Tyr Asn Gln Thr Val Asp Ile Trp Ser
                            200
                                                205
gtg gga tgc ata atg gcc gag ctg ttg act gga aga aca ttg ttt cct
                                                                      672
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Val Gly Cys Ile Met Ala Glu Leu Leu Thr Gly Arg Thr Leu Phe Pro

215

ggt	aca	gac	cat	att	gat	cag	ttg	aag	ctc	att	tta	aga	ctc	gtt	gga	720
	Thr	Asp	His	Ile		Gln	Leu	Lys	Leu		Leu	Arg	Leu	Val	Gly 240	
225			gct	~~~	230	++~	224	222	atc	235 tcc	tca	nan	tct	gca		768
Thr	Pro	G1 v	Ala	Glu	Leu	Len	Lvs	Lvs	Ile	Ser	Ser	Glu	Ser	Ala	Arg	
1111	110	СТУ	nıα	245	Deu	LCu		_1_	250					255	_	
aac	tat	att	cag	tct	ttg	act	cag	atg	ccg	aag	atg	aac	ttt	gcg	aat	816
Asn	Tyr	Ile	Gln	Ser	Leu	Thr	Gln	Met	Pro	Lys	Met	Asn	Phe	Ala	Asn	
			260					265					270			061
gta	ttt	att	ggt	gcc	aat	CCC	ctg	gct	gtc	gac	ttg	CTG	Glu	T.ve	atg Mot	864
vaı	Pne	275	Gly	Ата	ASn	Pro	280	Ата	Val	АЗР	пец	285	Giu	цуз	1700	
ctt	σta		gac	tca	gat	aaq		att	aca	gcg	gcc		gcc	ctt	gca	912
Leu	Val	Leu	Asp	Ser	Asp	Lys	Arg	Ile	Thr	Ala	Āla	Gln	Ala	Leu	Ala	
	290					295					300					0.60
cat	gcc	tac	ttt	gct	cag	tac	cac	gat	cct	gat	gat	gaa	cca	gtg	gcc	960
	Ala	Tyr	Phe	Ala	310	Tyr	HIS	Asp	Pro	315	Asp	GIU	PLO	vaı	320	
305	cct	tat	gat	cad		+++	даа	agc	agg		ctc	ctt	ata	gat		1008
Asp	Pro	Tvr	Asp	Gln	Ser	Phe	Glu	Ser	Arg	Asp	Leu	Leu	Ile	Asp	Glu	
				325					330					335		
tgg	aaa	agc	ctg	acc	tat	gat	gaa	gtc	atc	agc	ttt	gtg	cca	cca	ccc	1056
Trp	Lys	Ser	Leu	Thr	Tyr	Asp	Glu		Ile	Ser	Phe	Val	Pro	Pro	Pro	
- 4- 4-			340 gaa	~~~	~ + ~	~~~	+00	345	ast.	CC2	cca	atc	350	acc	ato	1104
CEE	gac Asn	Gln	Glu	Glu	Met	Glu	Ser	Glu	Asp	Pro	Pro	Val	Ala	Thr	Met	2201
Бец	дор	355	Olu	014	1100	014	360					365				
gtg	agc	aag	ggc	gag	gag	ctg	ttc	acc	ggg	gtg	gtg	ccc	atc	ctg	gtc	1152
Val		Lys	бĺу	Glu	Glu		Phe	Thr	Gly	Val		Pro	Ile	Leu	Val	
	370					375				++-	380	a+a	+ 00	aac	aaa	1200
gag	ctg	gac	ggc Gly	gac	gta	aac Aen	Glv	His	Lvs	Phe	Ser	Val	Ser	Glv	Glu	1200
385	Leu	Asp	GTÀ	АЗР	390	ASII	GLY	1113	цуз	395	DCI		-	0-1	400	
aac	gag	ggc	gat	gcc	acc	tac	ggc	aag	ctg	acc	ctg	aag	ttc	atc	tgc	1248
ĞÎy	Glu	Gly	Asp	Āla	Thr	Tyr	Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile	Cys	
				405					410		a+ a	~+~	200	415	ata	1296
acc	acc	ggc	aag Lys	ctg	CCC	gtg	Dro	Trn	Pro	Thr	Len	Val	Thr	Thr	Leu	1230
THE	TIII	сту	420	пец	FIO	Val	rio	425	110	1111	шси		430			
acc	tac	ggc	gtg	cag	tgc	ttc	agc	cgc	tac	ccc	gac	cac	atg	aag	cag	1344
Thr	Tyr	Ğĺy	Val	Gln	Cys	Phe	Ser	Arg	Tyr	Pro	Asp	His	Met	Lys	Gln	
		435					440					445		~~~	~~~	1392
cac	gac	ttc	ttc Phe	aag	tcc	gcc	atg	CCC	gaa	ggc	Tur	Val	Gln	Glu	Ara	1392
HIS	450	Pne	Pne	гуз	ser	455	Mec	FIO	Giu	GIY	460	Val	0.111	014	9	
acc	atc	ttc	ttc	aaq	gac	gac	ggc	aac	tac	aag	acc	cgc	gcc	gag	gtg	1440
Thr	Ile	Phe	Phe	Lys	Āsp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu	Val	
465					470					475				~~~	480	1488
aag	ttc	gag	ggc Gly	gac	acc	ctg	gtg	aac	cgc	atc	gag	CEG T.e.11	T.vs	Glv	Tle	1400
ьуs	Pne	GIU	. СТУ	485	Thr	ьец	vaı	ASII	490		Gra	шец	цуз	495	110	
gac	ttc	aaq	gag		ggc	aac	atc	ctg			aag	ctg	gag	tac	aac	1536
Asp	Phe	Lys	Glu	Asp	Ğĺy	Asn	Ile	Leu	Gly	His	Lys	Leu	Glu	Tyr	Asn	
			500					505					510			1504
tac	aac	ago	cac	aac	gtc	tat	atc	atg	gcc	gac	aag	cag	aag	aac	ggc	1584
Tyr	Asn	Ser		ASN	val	ryr	520		WIG	ASD	пÀр	525	- цуз	11011	Gly	
atc	aac	ata	aac	ttc	aaσ	atc			aac	atc	gaq			ago	gtg	1632
Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser	Val	
	530					535					540					1.000
cag	ctc	gcc	gac	cac	tac	cag	cag	aac	acc	CCC	ato	ggc	gac	ggc	ccc Pro	1680
Gln 545		Ala	. Asp	HIS	Tyr 550		GIN	ASN	1111	555		. сту	Aob	эту	7 Pro 560	
242					550	•				-55						

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        gtg
        ctg
        ctg
        ccc
        gac
        aac
        cac
        tac
        ctg
        agc
        acc
        cag
        tcc
        gac
        1728

        Val
        Leu
        Leu
        Pro
        Asp
        Asp
        Asp
        His
        Tyr
        Leu
        Ser
        Thr
        Gln
        Ser
        Ala
        Leu
        Ser
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290
                      295
                                        300
His Ala Tyr Phe Ala Gln Tyr His Asp Pro Asp Asp Glu Pro Val Ala
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                                    315
Asp Pro Tyr Asp Gln Ser Phe Glu Ser Arg Asp Leu Leu Ile Asp Glu
              325
                                330
Trp Lys Ser Leu Thr Tyr Asp Glu Val Ile Ser Phe Val Pro Pro
           340
                             345
Leu Asp Gln Glu Glu Met Glu Ser Glu Asp Pro Pro Val Ala Thr Met
                         360
                                           365
Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val
                    375
                             380
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
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                                   395
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
              405
                                410
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
               425 430
          420
Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
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His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg
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           455
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val
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Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile
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                                                   495
              485
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn
                             505
Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
                         520
                                           525
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                  535
                                        540
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
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                                    555
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
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                      570
Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
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					att											96
Glu	Arg	Glu	Glu	Asp	Ile	Asp	Leu		Leu	Gly	Asp	Ile		Thr	Val	
			20					25					30			
					gta											144
Asn	Lys	_	Ser	Leu	Val	Ala		Gly	Phe	Ser	Asp	_	Gln	Glu	Ala	
		35					40					45				
		-	-		ggc							-				192
Arg		Glu	Glu	Ile	Gly		Leu	Asn	Gly	Tyr		Glu	Thr	Thr	Gly	
	50					55					60					
					ccg											240
	Arg	Gly	Asp	Phe	Pro	Gly	Thr	Tyr	Val		Tyr	Ile	Gly	Arg	_	
65					70					75					80	
		_			aca		_									288
Lys	Ile	Ser	Pro		Thr	Pro	Lys	Pro	_	Pro	Pro	Arg	Pro		Pro	
				85					90					95		
_	_				tcg			_	-	_	_	-			_	336
Val	Ala	Pro	_	Ser	Ser	Lys	Thr		Ala	Asp	Val	Glu		Gln	Ala	
			100					105					110			
					ctt											384
Leu	Thr		Pro	Asp	Leu	Ala		GIn	Phe	Ala	Pro		Asp	тте	Ala	
		115					120					125				420
_					aag			-	-		-	_			_	432
Pro		Leu	Leu	тте	Lys		vaı	GIU	Ата	шe		гуѕ	гуѕ	GIĀ	Leu	
	130			_+_		135				<b>.</b>	140					400
_	_				tac	-		_	-		_		-	-	-	480
	Cys	ser	Thr	Leu	Tyr	Arg	Thr	GIN	ser		ser	Asn	Leu	Ата		
145				~++	150		~~+			155	~+~		++~	~~~	160	E 2.0
	_	_			gat	_	-					-	_	_	_	528
Leu	Arg	GIN	ьeu		Asp	Cys	Asp	Thr		ser	vaı	Asp	Leu	175	мес	
.+.	~~+	~+~	~~~	165	++~	~~+	~~~	~~+	170		~~~	+-+	a+a		~~~	576
	_			-	ttg Leu	_	_	_						_	_	376
TIE	ASP	vaı	180	vai	ьеи	Ата	ASP	185	FIIE	пÃ2	ALG	ıyı	190	ьец	ASP	
++=	CC2	22t		ata	att	cca	aca		att	tac	a or t	a a a		a++	tot	624
					Ile											024
пец	LIO	195	LIU	Val	116	LIO	200	AIG	Vai	TYL	Ser	205	Mec	110	561	
tta	act		gaa	αta	caa	agc		αaa	gaa	tat	att		cta	tta	aad	672
					Gln											0,2
пси	210	110	Oiu	<b>V</b> 41	0111	215	DCI	O.Lu	Olu	- y -	220	0111		Leu	_,	
aaα		att	agg	tca	cct		ata	cct	cat	cad		taa	ctt	acq	ctt	720
_				_	Pro	-				_				_		, •
225			9		230					235	-1-	<b>L</b>			240	
	tat	tta	tta	aaa	cat	ttc	ttc	aaq	ctc		caa	acc	tcc	agc		768
					His											
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Thr Leu Gly Thr Gly Ser Phe Gly Arg Val Met Leu Val Lys His Lys
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Ğlı	ı Arc	Th:	r Ile	e Phe	е Туі	Lys	: Asp	Asp	Gl ₃	y Ası	а Туі	с гуз	s Thi	Ar	g Ala	
	450)				455	5				460)				
gaa	art	- 22	g ttt	gaa	a ggt	gat	aco	ctt	gtt:	c aat	t aga	a ato	c gag	y tta	a aaa	1440
Gli	ı Va	Lv	s Phe	e Ğlı	u Ğĺs	Ast	Th	r Lei	ı Val	l Ası	n Arg	g Ile	e Glı	ı Le	и гуѕ	
16	5				470)				47.	5				480	
aat	r ati	ר תם	+ ++1	aa:	a gaa	a qat	c aa	a aac	ati	t ct	t gga	a ca	c aaa	a at	g gaa	1488
99	, T1	- ya	n Ph	5 T.v	s Gli	ı Ası	o G1	y Asr	110	e Le	u Ğĺ	y Hi	s Ly:	s Me	t Glu	
GT.	у тт	- AS	P E.114	. <u></u> .	J UI						•	-	-			

```
490
                485
tac aat tat aac tca cat aat gta tac atc atg gca gac aaa cca aag
                                                                    1536
Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Pro Lys
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                            505
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aat ggc atc aaa gtt aac ttc aaa att aga cac aac att aaa gat gga
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Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp Gly
                                                525
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age gtt caa tta gea gae eat tat caa caa aat act eea att gge gat
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Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp
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                                            540
ggc cct gtc ctt tta cca gac aac cat tac ctg tcc acg caa tct gcc
                                                                    1680
Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala
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ctt tcc aaa gat ccc aac gaa aag aga gat cac atg atc ctt ctt gag
                                                                    1728
Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu Glu
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                565
ttt gta aca gct gct ggg att aca cat ggc atg gat gaa cta tac aaa
                                                                    1776
Phe Val Thr Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
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cct cag gag taa
Pro Gln Glu
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                             40
 Thr Leu Gly Thr Gly Ser Phe Gly Arg Val Met Leu Val Lys His Lys
                                             60
                         55
 Glu Ser Gly Asn His Tyr Ala Met Lys Ile Leu Asp Lys Gln Lys Val
                     70
                                         75
 Val Lys Leu Lys Gln Ile Glu His Thr Leu Asn Glu Lys Arg Ile Leu
                 8.5
 Gln Ala Val Asn Phe Pro Phe Leu Val Lys Leu Glu Phe Ser Phe Lys
                                 105
             100
 Asp Asn Ser Asn Leu Tyr Met Val Met Glu Tyr Val Ala Gly Gly Glu
                                                 125
                             120
 Met Phe Ser His Leu Arg Arg Ile Gly Arg Phe Ser Glu Pro His Ala
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                         135
 Arg Phe Tyr Ala Ala Gln Ile Val Leu Thr Phe Glu Tyr Leu His Ser
                                        155
                     150
 Leu Asp Leu Ile Tyr Arg Asp Leu Lys Pro Glu Asn Leu Leu Ile Asp
                                    170
                 165
 Gln Gln Gly Tyr Ile Gln Val Thr Asp Phe Gly Phe Ala Lys Arg Val
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Lys Gly Arg Thr Trp Thr Leu Cys Gly Thr Pro Glu Tyr Leu Ala Pro
                        200
Glu Ile Ile Leu Ser Lys Gly Tyr Asn Lys Ala Val Asp Trp Trp Ala
                                      220
                    215
Leu Gly Val Leu Ile Tyr Glu Met Ala Ala Gly Tyr Pro Pro Phe Phe
              230 235
Ala Asp Gln Pro Ile Gln Ile Tyr Glu Lys Ile Val Ser Gly Lys Val
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           245
Arg Phe Pro Ser His Phe Ser Ser Asp Leu Lys Asp Leu Leu Arg Asn
               265
Leu Leu Gln Val Asp Leu Thr Lys Arg Phe Gly Asn Leu Lys Asp Gly
                                         285
    275 280
Val Asn Asp Ile Lys Asn His Lys Trp Phe Ala Thr Thr Asp Trp Ile
                     295
Ala Ile Tyr Gln Arg Lys Val Glu Ala Pro Phe Ile Pro Lys Phe Lys
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Gly Pro Gly Asp Thr Ser Asn Phe Asp Asp Tyr Glu Glu Glu Glu Ile
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Arg Val Ser Ile Asn Glu Lys Cys Gly Lys Glu Phe Thr Glu Phe Gly
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                           345
Arg Ala Met Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile
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                        360
Leu Val Glu Leu Asp Gly Asp Val Asn Gly Gln Lys Phe Ser Val Ser
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Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe
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Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr
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Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met
                                           430
                   425
Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln
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 Glu Arg Thr Ile Phe Tyr Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala
                                      460
                     455
 Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys
                                   475
                 470
 Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Met Glu
                                                 495
                             490
              485
 Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Pro Lys
                           505
           500
 Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp Gly
                   520 525
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 Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp
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 Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala
                         555
                550
 Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu Glu
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 Pro Gln Glu
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gag tac atc aag acc tgg cgg cca cgc tac ttc ctc ctc aag aat gat
                                                                       96
Glu Tyr Ile Lys Thr Trp Arg Pro Arg Tyr Phe Leu Leu Lys Asn Asp
                                25
           20
ggc acc ttc att ggc tac aag gag cgg ccg cag gat gtg gac caa cgt
                                                                      144
Gly Thr Phe Ile Gly Tyr Lys Glu Arg Pro Gln Asp Val Asp Gln Arg
                                                45
                            40
gag gct ccc ctc aac aac ttc tct gtg gcg cag tgc cag ctg atg aag
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Glu Ala Pro Leu Asn Asn Phe Ser Val Ala Gln Cys Gln Leu Met Lys
                        55
acg gag cgg ccc cgg ccc aac acc ttc atc atc cgc tgc ctg cag tgg
                                                                      240
Thr Glu Arg Pro Arg Pro Asn Thr Phe Ile Ile Arg Cys Leu Gln Trp
acc act gtc atc gaa cgc acc ttc cat gtg gag act cct gag gag cgg
                                                                      288
Thr Thr Val Ile Glu Arg Thr Phe His Val Glu Thr Pro Glu Glu Arg
                8.5
gag gag tgg aca acc gcc atc cag act gtg gct gac ggc ctc aag aag
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Glu Glu Trp Thr Thr Ala Ile Gln Thr Val Ala Asp Gly Leu Lys Lys
                                                     110
                                105
                                                                       384
cag gag gag gag atg gac ttc cgg tcg ggc tca ccc agt gac aac
Gln Glu Glu Glu Met Asp Phe Arg Ser Gly Ser Pro Ser Asp Asn
                                                 125
                             120
 tca ggg gct gaa gag atg gag gtg tcc ctg gcc aag ccc aag cac cgc
                                                                       432
 Ser Gly Ala Glu Glu Met Glu Val Ser Leu Ala Lys Pro Lys His Arg
                                             140
                         135
 gtg acc atg aac gag ttt gag tac ctg aag ctg ctg ggc aag ggc act
                                                                       480
 Val Thr Met Asn Glu Phe Glu Tyr Leu Lys Leu Leu Gly Lys Gly Thr
                                         155
                     150
 ttc ggc aag gtg atc ctg gtg aag gag aag gcc aca ggc cgc tac tac
                                                                       528
 Phe Gly Lys Val Ile Leu Val Lys Glu Lys Ala Thr Gly Arg Tyr Tyr
                                     170
                 165
 gcc atg aag atc ctc aag aag gaa gtc atc gtg gcc aag gac gag gtg
                                                                       576
 Ala Met Lys Ile Leu Lys Lys Glu Val Ile Val Ala Lys Asp Glu Val
                                                     190
             180
 gcc cac aca ctc acc gag aac cgc gtc ctg cag aac tcc agg cac ccc
                                                                       624
 Ala His Thr Leu Thr Glu Asn Arg Val Leu Gln Asn Ser Arg His Pro
                             200
                                                  205
 ttc ctc aca gcc ctg aag tac tct ttc cag acc cac gac cgc ctc tgc
                                                                       672
 Phe Leu Thr Ala Leu Lys Tyr Ser Phe Gln Thr His Asp Arg Leu Cys
                                              220
                         215
 ttt gtc atg gag tac gcc aac ggg ggc gag ctg ttc ttc cac ctg tcc
                                                                       720
 Phe Val Met Glu Tyr Ala Asn Gly Gly Glu Leu Phe Phe His Leu Ser
                                          235
                      230
 cgg gaa cgt gtg ttc tcc gag gac cgg gcc cgc ttc tat ggc gct gag
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 Arg Glu Arg Val Phe Ser Glu Asp Arg Ala Arg Phe Tyr Gly Ala Glu
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245

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cgg Arg	gac Asp	ctc Leu 275	260 aag Lys	ctg Leu	gag Glu	aac Asn	ctc Leu 280	atq	ctg Leu	gac Asp	aag Lys	gac Asp 285	ggg Gly	cac His	att Ile	864
Lys	Ile 290	aca Thr	Asp	Phe	Gly	Leu 295	Cys	Lys	Glu	Gly	300	Lys	gac Asp	GTÀ	Ala	912
Thr	atg Met	Lys	Thr	Phe	Cys 310	Gly	Thr	Pro	Glu	Tyr 315	Leu	АТа	ccc Pro	GIU	320	960
Leu	Glu	Asp	Asn	Asp 325	Tyr	Gly	Arg	Ala	Val 330	Asp	Trp	Trp	ggg Gly	335	GIÀ	1008
Val	Val	Met	Tyr 340	Glu	Met	Met	Cys	Gly 345	Arg	Leu	Pro	Pne	tac Tyr 350	ASII	GIII	1056
Asp	His	Glu 355	Lys	Leu	Phe	Glu	Leu 360	Ile	Leu	Met	GLu	365	TTE	Arg	ttc Phe	1104
Pro	Arg	Thr	Leu	Gly	Pro	Glu 375	Ala	Lys	ser	ьeu	380	Ser	Gry	пеп	Leu	1200
Lys	Lys	Asp	Pro	Lys	Gln 390	Arg	Leu	Gly	GТУ	395	Ser	GIU	ı Asp	Ala	Lys 400	1248
Glu	Ile	Met	Gln	His 405	Arg	Phe	Phe	Ala	Gly 410	TTe	· vaı	rr) GIII	415		1296
Tyr	Glu	Lys	Lys	: Leu	Ser	Pro	Pro	Phe 425	Lys	Pro	GIT	ı val	430	261	g gag Glu	1344
Thr	Asp	Thr	Arg	J Tyr	Phe	Asp	Glu 440	Glu	Phe	Thr	AL	445	i mec	. 116	e Thr	1392
Ile	Thr	Pro	Pro	Asp	Gln	Asp 455	Asp	Ser	Met	: Glu	1 Cys 460	s va.)	l Asp	se:	gag r Glu	1440
Arg	g Arc	y Pro	His	s Phe	Pro 470	Gln	Phe	. Ser	ТУІ	Se: 479	r Ala 5	a se	r sei	111.	g gcc r Ala 480 a ttc	
Sei	r Asp	Pro	Pro	o Val 485	L Ala	Thr	Met	. Val	. Sei 490) : гй:	s GI	A GT	u Gi	49		
Th	r Gl	y Va	1 Va.	l Pro O	o Ile	e Lei	ı Val	505 J	ı Let 5	ı As	р ст	y As	51 ¹	0 AS	c ggc n Gly	
Ηi	s Ly	s Ph	e Se 5	r Va	l Se	c Gl	y Gl: 52	ג Gly כ	y G11	u GI	y As	р А1 52	a Th. .5	r Ty	r Gly	
Lу	s Le	u Th n	r Le	u Ly	s Ph	e Il.	e Cy. 5	s Th:	r Th	r GI	у _{Бу} 54	о ге	u PI	O Va	l Pro	,
Tr 54	p Pr	o Th	r Le	u Va	1 Th 55	r Th O	r Le	u Th	r Ty	r G1 55	y va 55	.I G1	n Cy	S PI	se Ser 560 cc ato)
Ar	д Ту	r Pr	o As	sp Hi 56	s Me	t Ly	s Gl	n Hi	s As 57	рPn O	ie Pr	те г7	/S 5e	5	La Met	•
Pr	c ga co Gl	a gg u Gl	c ta y Ty 58	r Va	.1 Gl	y ga n Gl	u Ar	g Th 58	r 11	e Ph	ne Ph	ne Ly	ys As 59	p A	sp Gly	1

Asn	Tyr	Lys 595	acc Thr	Arg	Ala	Glu	Val 600	Lys	Phe	Glu	Gly	Asp 605	Thr	Leu	vaı	1824
Asn	Arg 610	Ile	gag Glu	Leu	Lys	Gly 615	Ile	Asp	Phe	Lys	Glu 620	Asp	Gly	Asn	Ile	1872
ctg Leu 625	ggg Gly	cac His	aag Lys	ctg Leu	gag Glu 630	tac Tyr	aac Asn	tac Tyr	aac Asn	agc Ser 635	cac His	aac Asn	gtc Val	tat Tyr	atc Ile 640	1920
atσ	gcc Ala	gac Asp	aag Lys	cag Gln 645	aaq	aac Asn	ggc Gly	atc Ile	aag Lys 650	gtg Val	aac Asn	ttc Phe	aag Lys	atc Ile 655	cgc Arg	1968
cac His	aac Asn	atc Ile	gag Glu 660	gac	ggc Gly	agc Ser	gtg Val	cag Gln 665	ctc	gcc Ala	gac Asp	cac His	tac Tyr 670	cag Gln	cag Gln	2016
aac Asn	acc Thr	ccc Pro 675	atc Ile	ggc Gly	gac Asp	ggc Gly	ccc Pro 680	gtg	ctg Leu	ctg Leu	ccc Pro	gac Asp 685	aac Asn	cac His	tac Tyr	2064
ctg Leu	agc Ser 690	acc	cag Gln	tcc Ser	gcc Ala	ctg Leu 695	agc	aaa Lys	gac Asp	ccc Pro	aac Asn 700	gag Glu	aag Lys	cgc Arg	gat Asp	2112
cac His 705	ato	gtc Val	ctg Leu	ctg Leu	gag Glu 710	ttc Phe	gtg Val	acc Thr	gcc Ala	gcc Ala 715	ggg Gly	atc Ile	act Thr	ctc Leu	ggc Gly 720	2160
atg			ctg Leu		Lys	taa										2181

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Val Thr Met Asn Glu Phe Glu Tyr Leu Lys Leu Leu Gly Lys Gly Thr
                150
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Phe Gly Lys Val Ile Leu Val Lys Glu Lys Ala Thr Gly Arg Tyr Tyr
                             170
              165
Ala Met Lys Ile Leu Lys Lys Glu Val Ile Val Ala Lys Asp Glu Val
                                    190
                            185
          180
Ala His Thr Leu Thr Glu Asn Arg Val Leu Gln Asn Ser Arg His Pro
            200
Phe Leu Thr Ala Leu Lys Tyr Ser Phe Gln Thr His Asp Arg Leu Cys
         215
Phe Val Met Glu Tyr Ala Asn Gly Gly Glu Leu Phe Phe His Leu Ser
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Arg Glu Arg Val Phe Ser Glu Asp Arg Ala Arg Phe Tyr Gly Ala Glu
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Ile Val Ser Ala Leu Asp Tyr Leu His Ser Glu Lys Asn Val Val Tyr
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                             2.65
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Arg Asp Leu Lys Leu Glu Asn Leu Met Leu Asp Lys Asp Gly His Ile
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                        280
Lys Ile Thr Asp Phe Gly Leu Cys Lys Glu Gly Ile Lys Asp Gly Ala
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                                        300
Thr Met Lys Thr Phe Cys Gly Thr Pro Glu Tyr Leu Ala Pro Glu Val
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                  310
Leu Glu Asp Asn Asp Tyr Gly Arg Ala Val Asp Trp Trp Gly Leu Gly
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              325
Val Val Met Tyr Glu Met Met Cys Gly Arg Leu Pro Phe Tyr Asn Gln
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                            345
          340
Asp His Glu Lys Leu Phe Glu Leu Ile Leu Met Glu Glu Ile Arg Phe
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Pro Arg Thr Leu Gly Pro Glu Ala Lys Ser Leu Leu Ser Gly Leu Leu
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                      375
Lys Lys Asp Pro Lys Gln Arg Leu Gly Gly Gly Ser Glu Asp Ala Lys
                                    395
                  390
Glu Ile Met Gln His Arg Phe Phe Ala Gly Ile Val Trp Gln His Val
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              405
Tyr Glu Lys Lys Leu Ser Pro Pro Phe Lys Pro Gln Val Thr Ser Glu
                                     430
                             425
           420
Thr Asp Thr Arg Tyr Phe Asp Glu Glu Phe Thr Ala Gln Met Ile Thr
                         440
 Ile Thr Pro Pro Asp Gln Asp Asp Ser Met Glu Cys Val Asp Ser Glu
                              460
                     455
 Arg Arg Pro His Phe Pro Gln Phe Ser Tyr Ser Ala Ser Ser Thr Ala
         470 475
 Ser Asp Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu Phe
                                 490
           485
 Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly
                 505
 His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly
                                            525
                          520
      515
 Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro
                       535
                                        540
 Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser
                                     555
                   550
 Arg Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met
                                 570
 Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly
                                               590
                              585
            580
 Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val
                          600
 Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile
                                        620
                      615
 Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile
                                 635
                  630
 Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg
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650
His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln
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 gcc aac cgc ttc gcc cgc aaa ggg gcg ctg agg cag aag aac gtg cat
 Ala Asn Arg Phe Ala Arg Lys Gly Ala Leu Arg Gln Lys Asn Val His
                                 25
             20
  gag gtg aaa gac cac aaa ttc atc gcc cgc ttc ttc aag caa ccc acc
                                                                       144
  Glu Val Lys Asp His Lys Phe Ile Ala Arg Phe Phe Lys Gln Pro Thr
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  ttc tgc agc cac tgc acc gac ttc atc tgg ggg ttt ggg aaa caa ggc
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  Phe Cys Ser His Cys Thr Asp Phe Ile Trp Gly Phe Gly Lys Gln Gly
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  ttc cag tgc caa gtt tgc tgt ttt gtg gtt cat aag agg tgc cat gag
                                                                       240
  Phe Gln Cys Gln Val Cys Cys Phe Val Val His Lys Arg Cys His Glu
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  ttc gtt acg ttc tct tgt ccg ggt gcg gat aag gga cct gac act gac
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  Phe Val Thr Phe Ser Cys Pro Gly Ala Asp Lys Gly Pro Asp Thr Asp
                                      90 -
                  85
  gac ccc agg agc aag cac aag ttc aaa atc cac aca tac gga agc cct
                                                                       336
  Asp Pro Arg Ser Lys His Lys Phe Lys Ile His Thr Tyr Gly Ser Pro
                                 105
                                                     110
  ace ttc tgt gat cac tgt ggg tcc ctg ctc tat gga ctt atc cac caa
                                                                        384
  Thr Phe Cys Asp His Cys Gly Ser Leu Leu Tyr Gly Leu Ile His Gln
                              120
          115
  ggg atg aaa tgt gac acc tgc gac atg aat gtt cac aac cag tgt gtg
                                                                        432
  Gly Met Lys Cys Asp Thr Cys Asp Met Asn Val His Asn Gln Cys Val
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135

Ile	aat Asn	gac Asp	cct Pro	agc Ser	Leu	tgc Cys	gga Gly	atg Met	gat Asp	cac His	aca Thr	ga : GI	ag (aag Lys	agg Arg	gg Gl: 16	У	480
145 cgg Arg	att Ile	tat Tyr	ctg Leu	aag Lys	150 gct Ala	gag Glu	gtc Val	act Thr	gat Asp 170	qaa	aag Lys	ct Le	tc eu	cac His	gtc Val 175	ac Th	g r	528
gta Val	cga Arg	gat Asp	Ala	165 aaa Lys	aat Asn	cta Leu	atc Ile	cct Pro 185	atg	gat Asp	cca Pro	a aa	at sn	ggg Gly 190	ctt Leu	tc Se	g r	576
gat Asp	cct Pro	Tyr	180 gtg Val	aag Lys	ctg Leu	aaa Lys	cta Leu 200	atc	cct Pro	gac Asp	cco Pro	э т	ag ys 05	aat Asn	gag Glu	ag Se	c	624
aaa Lys	Gln	195 aaa Lys	acc Thr	aaa Lys	acc Thr	atc Ile 215	cac	tcc Ser	aac Asn	cto	aat Asi 220	t c	ct	cag Gln	tgg Trp	aa As	t n	672
Glu	210 tcc Ser	ttc Phe	acg Thr	ttc Phe	Lys	tta	aaa Lys	cct Pro	tca Ser	gad Asp 235	с ааа Бур	a g	ac	cgg Arg	cga Arg	Ct Le	:u	720
225 tct Ser	gta Val	gaa Glu	ato Ile	tgg	Asp	tgg Trp	gat Asp	cgg Arg	acg Thr 250	act Thi	cg:	ga gA	at	gac Asp	ttc Phe 255	at Me	g	768
gga Gly	tcc Ser	ctt	tco Sei 260	245 ttt Phe	aat	gtc Val	tca Ser	gag Glu 265	cta Lev	ato	g aa t Ly	g a s M	itg Iet	ccg Pro 270	gcc Ala	aç a Se	gt er	816
gga Gly	tgg Trp	tat Tyr 275	aaa Lys	a gct s Ala	cac His	aac	caa Glm 280	gaa Glu	gad	g gg	c ga y Gl	u 1	at Tyr 285	tac Tyr	aac Asr	gt iVa	tg al	864
ccc Pro	att Ile	cca	, па	a gga ı Gly	gat Asp	gaa Glu 295	ı gaa ı Glu	aac	aac Asi	at n Me	g ga t Gl 30	u 1	ctc Leu	agg Arg	Glr	g aa n Ly	ag ys	912
Phe	gag Glu		a gc	c aaq a Lys	g cta s Leu 310	a ggt a Gly	. cct	gtt Val	ggi Gl	t aa y As 31	и га	a ç	gtc Val	ato Ile	ago Sei	L E.	ct ro 20	960
305 tca Ser		gao Asj	c ag	a aaq g Ly: 32	g caa s Gli	a cca	a tco Sei	c aac c Asr	aa n Asi 33	n Le	g ga u As	sp I	aga Arg	gto Val	aa: Ly: 33	э ц	tc eu	1008
aca Thi	a gad Asp	tto Ph	c aa e As 34	c tte	a ete	ate u Me	g gto	g cto l Let 34!	ı Gl	g aa y Ly	g gg s Gl	ly a	agt Ser	ttt Phe 350	S GT	ga yL	ag ys	1056
gto Val	g ato	g ct Le 35	t gc u Al	t ga a As	c ag p Ar	g aa g Ly	g gg s Gl; 36	a aco	g ga	g ga u Gl	a ct .u Le	∌u	tac Tyr 365	ATC	at a Il	c a e L	ag ys	1104
ato Ilo	c cto e Le	g aa u Ly	r aa	g ga s As	c gt p Va	g gt 1 Va 37	g at	c ca	g ga n As	c ga p As	sp A:	ac sp 80	gtg Val	gaq Gl	g tg u Cy	c a s T	cc hr	1152
at Me 38	g gt t Va	a a =	g aa u Ly	ıg cg 's Ar	c gt g Va 39	g ct l Le	a ac	c ct a Le	g ct u Le	u As	ac as sp L	ag ys	Pro	p cc	a tt o Ph	.e 1	tg Leu 100	1200
ac Th	a ca r Gl	n Le	u Hi	ac to is Se 40	c tg r Cy	c tt	e Gl	n Th	r Va 41	il A: LO	sp A	rg	ьег	1 ту	41	.5	vaı	1248
Me	t Gl	u T	r Va	c aa al As	sn Gl	.y G1	Ly As	яр Le 42	eu Me 25	et T	уг н	1.5	11,	43	0	.11	Val	1296
G1	у Гу	's Ph	t a	ag ga ys Gl	Lu Pi	co G.	Ln AJ	La Va 10	at bi	ne T	yr A	ııa	44	a 61 5	.u 1.		DCI	1344
11	e Gl	ja ci	tg t eu P	tc to	ne Le	eu Ha	is Ly 55	ys Ai	rg G	ту	Te 1	160	ту	r AI	.g A	ъÞ	пец	1392
Ly	~ ct	- m =	ac a sn A	at g sn V	al M	ta c	to a	ac to sn Se	ca g er G	Iu G	gg o	cac His	at Il	c aa e Ly	aa a /s I	tc le	gcc Ala 480	1440

gac Asp	ttc Phe	ggg Gly	atg Met	tgc Cys	aag Lys	gaa Glu	cac His	Met 1	atg Met 490	gat Asp	gga Gly	gtc Val	acg Thr	acc Thr 495	agg Arg	1488
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cag Gln	ccg Pro	Tyr	500 ggg Gly	aag Lys	tct Ser	gta Val	gat Asp 520	tag	tgg Trp	gcg Ala	tac Tyr	ggt Gly 525	gtg Val	ctg Leu	ctg Leu	1584
tac Tyr	Glu	515 atg Met	cta Leu	gcc Ala	Gly ggg	cag Gln 535	cct	ccg Pro	ttt Phe	gat Asp	ggt Gly 540	gaa Glu	gat Asp	gaa Glu	gat Asp	1632
Glu	530 ctg Leu	ttt Phe	cag Gln	tct Ser	ata Ile 550	atq	gag Glu	cac His	aac Asn	gtg Val 555	tcc Ser	tac Tyr	ccc Pro	aaa Lys	tcc Ser 560	1680
545 ttg Leu	tcc Ser	aag Lys	gaa Glu	gcc Ala 565	atc	tcc Ser	atc Ile	tgc Cys	aaa Lys 570	gga Gly	ctt Leu	atg Met	acc Thr	aaa Lys 575	cag Gln	1728
cct Pro	gcc Ala	aag Lys	cga Arg 580	ctg Leu	ggc Gly	tgc Cys	ggg Gly	ccc Pro 585	gag Glu	gga Gly	gag Glu	agg Arg	gat Asp 590	gtc Val	aga Arg	1776
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Glu	Ile	caa Gln	Pro	Pro	Phe	Lys 615	Pro	Lys	Val	Cys	620	ьys	GIY	Ald	gaa Glu	1872
Asn	ttt Phe	Asp	Lys	Phe	Phe 630	Thr	Arg	GLY	GIn	635	vaı	ьeu	1111	FIC	Pro 640	1920
gat Asp	Gln	Leu	Val	. Ile 645	gct Ala	Asn	Ile	Asp	650	Ser	Asp	Pne	GIU	655		1968
Ser	Tyr	Val	. Asn	ccc Pro	Gln	Phe	Val	His 665	Pro	116	ь гес	GLI.	670))	a gta a Val	2016
Gly	Arg	Ala 675	ato Met	agt Ser	Lys	Gly	Glu 680	Glu	Leu	Phe	rni	685	va.	. va.	c cca L Pro	2064
Il€	Lev 690	gtt Val	gaa Glu	ı Leu	ı Asp	Gly 695	Asp	Val	Asn	r GTZ	700) л г.	s Pne	e se.	t gtt r Val	2112
Sei	gga	gaq Glu	ı Gly	y Glu	ı Gly 710	, Asp	Ala	1 Thr	туг	GL <u>s</u> 715	у гу: 5	з ье	ı Tni	те.	t aaa u Lys 720	
tt1 Phe	att e Ile	e Cy	s Th	r Thi 725	c Gly	/ Lys	Lei	ı Pro	va. 730	l Pro	o Tr	b br	3 111.	73		
Th	r Th	r Le	u Th.	r Tyi	r Gly	y Val	Glı	n Cys 745	s Phe 5	e Se	r Ar	д ту	75	o as O	t cat p His	
Me	t Ly	s Gl 75	n Hi 5	s As	p Phe	e Phe	E Ly. 76	s Sei O	r Al	а ме	t Pr	76	u Gi 5	у ту	t gta r Val	
G1	n Gl	a ag u Ar	a ac g Th	r Il	e Ph	е Ту: 77:	r Ly 5	s As	p As	p GI	y As 78	n Ty O	т ьу	S II	a cgt ir Arg	J
A1	t ga a Gl	a gt u Va	l Ly	s Ph	e Gl 79	u GL O	y As	p Th	т ье	u va 79	11 AS	III AL	.y 11	.6 01	ig tta Lu Lei 800	ĵ
	2 00	t at y Il	t ga .e As	t tt sp Ph 80	е Гу	a ga s Gl	a ga u As	t gg p Gl	a aa y As 81	n 11	t ct .e Le	t gg eu Gl	a ca y Hi	.5 г.	aa atq ys Met 15	g 2448 t

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gaa tac aat tat aac tca cat aat gta tac atc atg gca gac aaa cca
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Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Pro
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                                                                    2544
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Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp
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                           840
      835
gga agc gtt caa tta gca gac cat tat caa caa aat act cca att ggc
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Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly
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Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser
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865
                                                                     2688
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Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Ile Leu Leu
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gag ttt gta aca gct gct ggg att aca cat ggc atg gat gaa cta tac
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Lys Pro Gln Glu
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Lys Gln Lys Thr Lys Thr Ile Arg Ser Asn Leu Asn Pro Gln Trp Asn
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Glu Ser Phe Thr Phe Lys Leu Lys Pro Ser Asp Lys Asp Arg Arg Leu
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Ser Val Glu Ile Trp Asp Trp Asp Arg Thr Thr Arg Asn Asp Phe Met
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Gly Ser Leu Ser Phe Gly Val Ser Glu Leu Met Lys Met Pro Ala Ser
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Gly Trp Tyr Lys Ala His Asn Gln Glu Glu Gly Glu Tyr Tyr Asn Val
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Pro Ile Pro Glu Gly Asp Glu Glu Gly Asn Met Glu Leu Arg Gln Lys
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Phe Glu Lys Ala Lys Leu Gly Pro Val Gly Asn Lys Val Ile Ser Pro
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Ser Glu Asp Arg Lys Gln Pro Ser Asn Asn Leu Asp Arg Val Lys Leu
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Thr Asp Phe Asn Phe Leu Met Val Leu Gly Lys Gly Ser Phe Gly Lys
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Val Met Leu Ala Asp Arg Lys Gly Thr Glu Glu Leu Tyr Ala Ile Lys
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                               380
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Met Val Glu Lys Arg Val Leu Ala Leu Leu Asp Lys Pro Pro Phe Leu
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Thr Gln Leu His Ser Cys Phe Gln Thr Val Asp Arg Leu Tyr Phe Val
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Met Glu Tyr Val Asn Gly Gly Asp Leu Met Tyr His Ile Gln Gln Val
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Gly Lys Phe Lys Glu Pro Gln Ala Val Phe Tyr Ala Ala Glu Ile Ser
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Ile Gly Leu Phe Phe Leu His Lys Arg Gly Ile Ile Tyr Arg Asp Leu
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Thr Phe Cys Gly Thr Pro Asp Tyr Ile Ala Pro Glu Ile Ile Ala Tyr
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Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Met
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Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Pro
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Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Lys Asp
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Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly
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Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser
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                                     10
                 5
                                                                       96
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 Gly Trp Lys Lys Ser Ala Gly Gly Ser Gly Gly Ala Gly Gly Gly Glu
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 cag aat ggg cag gaa gaa aag tgg tgt gag aaa gca gtg aaa agt ctg
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 Gln Asn Gly Gln Glu Glu Lys Trp Cys Glu Lys Ala Val Lys Ser Leu
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Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys

710

715 720

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Val	50					55					60					
-+-		act	caa	aac	tat	aat	act	aaa	tgt ·	gtt	acc	ata	cca	agc	act	240
Tlo	Thr	Thr	Gln	Asn	Cvs	Asn	Thr	Lys	Cvs	Val	Thr	Ile	Pro	Ser	Thr	
	TIIL	1111	GIII	71511	70				4	75					80	
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tgc	tet	gaa	TIO	mwp.	Clu	Lou	Ser	Thr	Pro	Asn	Thr	Ile	Asp	Gln	Trp	
Cys	ser	GIU	116		Gry	дец	DCI		90				-	95		
				85		200	++~			caa	acc	agg	tct	ctt	gat	336
gat	aca	aca	ggc	CEE	tac	age	Dha	tct	Clu	Gln	Thr	Ara	Ser	Leu	Āsp	
Asp	Thr	Thr		Leu	Tyr	ser	PHE	Ser	GIU	GIII	1111	9	110			
			100					105	~~~	++~	003	cat		ata	tat	384
ggt	cgt	ctc	cag	gta	tcc	cat	cga	aaa	gga	LLG	Dwa	uic	Val	Tla	Tur	
Gly	Arg	Leu	Gln	Val	Ser	His	Arg	Lys	СТА	ьeu	PIO	125	Val	110	- y	
		115					120						~~~	ata	220	432
tgc	cga	tta	tgg	cgc	tgg	cct	gat	ctt	cac	agt	cat	cat	gaa	Ton	Tura	102
Cys	Arg	Leu	Trp	Arg	\mathtt{Trp}	Pro	Asp	Leu	His	Ser	HIS	HIS	GIU	ьец	пуз	
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qca	att	gaa	aac	tgc	gaa	tat	gct	ttt	aat	ctt	aaa	aag	gat	gaa	gta	400
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145					150					155					100	500
+ ~+	gta	aac	cct	tac	cac	tat	cag	aga	gtt	gag	aça	cca	gtt	ttg	cct	528
Cvs	Val	Asn	Pro	Tvr	His	Tyr	Gln	Arg	Val	Glu	Thr	Pro	Val	ьeu	Pro	
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000	ata	tta	ata	CCC	cga	cac	acc	gag	atc	cta	aca	gaa	ctt	ccg	cct	576
Dwa	y ca	Lou	Val	Pro	Ara	His	Thr	Glu	Ile	Leu	Thr	Glu	Leu	Pro	Pro	
PLO	vaı	пец	180	110	1119			185					190			
		~~~	+ > +	201	Cac	tcc	att	cca	gaa	aac	act	aac	ttc	cca	gca	624
ctg	gat	gac	m	Thr.	uic	Sor	Tle	Pro	Glu	Asn	Thr	Asn	Phe	Pro	Ala	
Leu	Asp			TIII	птэ	Ser	200	110	0			205				
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gga	att	gag	cca	cag	agt	aat	m	Tlo	Dro.	Glu	Thr	Pro	Pro	Pro	Ğĺv	
Gly		Glu	Pro	Gin	Ser	ASN	туг	TTE	PIO	GIU	220	110	220		Gly	
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tat	atc	agt	gaa	gat	gga	gaa	aca	agt	gac	Cla	Cln	Lou	Aen	Gln	Ser	
Tyr	Ile	Ser	Glu	Asp			Thr	Ser	Asp	GIII	GIII	ьеи	ASI	GII	Ser 240	
225					230					235			a++	+ 00		768
atg	gac	aca	ggc	tct	cca	gca	gaa	cta -	tct	CCT	act	act mb	Tou		cct	, 00
Met	Asp	Thr	: Gly	Ser	Pro	Ala	Glu	Leu	Ser	Pro	Thr	Thi	тес	, ser	ILO	
				245					250					255		816
att	aat	cat	ago	: ttg	gat	tta	cag	cca	gtt	act	tac	tca	gaa	CCT	gca	010
vаl	Asn	His	Ser	Leu	Asp	Leu	Gln	Pro	Val	Thr	Туг	Ser	GIL	LPIC	Ala	
			260	)				265					2/0	,		0.64
ttt	taa	r tat	tca	ata	gca	tat	tat	gaa	tta	aat	cag	ago	gtt	gga	gaa Glu	864
Phe	Trp	Cys	s Ser	: Ile	Ala	Tyr	Tyr	Glu	Leu	Asn	Glr	ALC	y va.	r GT2	/ Glu	
		275	5				280	)				283	)			010
acc	tto	cat	. aca	a tca	caq	ccc	tca	a ctc	act	. gta	ı gat	gg	: ttt	aca	a gac	912
Thr	Phe	Hi	s Ala	a Ser	Gln	Pro	Ser	Leu	Thr	· Val	. Asp	Gly	/ Phe	e Thi	qaA ı	
	200	`				295					300	,				
001	+ + < =		t tca	a dad	ago	r tto	: tac	tta	ggt	tta	cto	tc	c aat	t gt	t aac	960
Doe		. 7.6	n Sei	r Gli	ı Arc	r Phe	CVS	s Leu	ιĞĺν	Leu	ı Leı	ı Se	r Ası	n Va	l Asn	
		LAS	11 561	. 010	310				_	315	5				320	
305		- ~-	a 200	~ at=	o maa	ato	r aca	a aga	ago	r cat	ata	a gg	a ag	a gg	a gtg	1008
cga	a aai	- 33	o mb	y yca	Gli	. Mot	Th	r Arc	r Arc	His	s I10	e Gĺ	y Ar	g Gl	y Val	
Arc	g Ası	n Al	a 111.			ı Met			330	)			•	33	5	
				32		- ~~	- ~	~ a++			t da	a ta	c ct	ааσ	t gat	1056
cgo	c tta	a ta	c ta	c ata	a ggi	- 61	, ya	a gu	Dhe	- 90.	e Gl	ıı Cv	s Le	u Se	r Āsp	
Arc	g Le	u Ty			е ст	A GT	/ 61	u va. 345	- E116	s Ale	. 01	u 0,	35	0	•	
			34	0								~ ~~			c taa	1104
					~ ~ ~ ~ /	a aaa	CC	c aa	Egi	Laa	L Ca	y ay	a ca	- 99	- T	
ag	t gc	a at	c tt	t gt	y ca			_ 7 -		~ ~ ~	ים מ		יייי ה	Υ (÷ I	v rrn	
ag: Se:	t gc	a Il	e Ph	e Va	l Gl	n Se	r Pr	o Ası	n Cy:	s` Ası	n Gl	JA II	д ту	r GI	у тгр	
Se	r Al	a Il 35	e Ph	e Va	1 G1:	n Sei	r Pr 36	o Ası O	n Cys	s` As	n GI	20	9 1y 5	r Gr	утгр	1152
Se:	r Al	a Il 35	e Ph	e Va	a ta	n Sei taa	r Pr 36 a at	o Asi 0 t cca	n Cys	a qq	n 61 c tg	t aa	g ry 5 t ct	g aa	g atc	1152
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                             600
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                                                                     1872
 Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn
                         615
                                                                     1920
 tac aac agc cac aac gtc tat atc atg gcc gac aag cag aac ggc
 Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
                                         635
                     630
 atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc gtg
                                                                      1968
 Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                 645
 cag ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc ccc
                                                                      2016
 Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                                                     670
                                 665
 gtg ctg ctg ccc gac aac cac tac ctg agc acc cag tcc gcc ctg agc
                                                                      2064
 Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
                                                 685
                             680
         675
 aaa gac ccc aac gag aag cgc gat cac atg gtc ctg ctg gag ttc gtg
                                                                      2112
 Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
                                             700
                         695
 ace gee gee ggg ate act ete gge atg gae gag etg tae aag taa
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 Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
 705
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<211> 718

<212> PRT

<213> Artificial Sequence

<220>

<223> Smad2-EGFP fusion

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375
Phe Asn Asn Gln Glu Phe Ala Ala Leu Leu Ala Gln Ser Val Asn Gln
                                 395
                  390
Gly Phe Glu Ala Val Tyr Gln Leu Thr Arg Met Cys Thr Ile Arg Met
                               410
             405
Ser Phe Val Lys Gly Trp Gly Ala Glu Tyr Arg Arg Gln Thr Val Thr
                   425
          420
Ser Thr Pro Cys Trp Ile Glu Leu His Leu Asn Gly Pro Leu Gln Trp
               440
                                           445
Leu Asp Lys Val Leu Thr Gln Met Gly Ser Pro Ser Val Arg Cys Ser
                              460
          455
Ser Met Ser Trp Val Pro Arg Ala Arg Asp Pro Pro Val Ala Thr Met
                                  475
                 470
Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val
                               490
              485
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                                              510
           500
                            505
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
                                        525
               520
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
                              540
            535
Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
                                   555
                 550
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg
            565 570
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val
                            585
                                               590
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile
               600
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn
                                       620
                      615
Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
                                    635
                  630
625
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
                                                   655
                                650
              645
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                          665
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
                                     685
                         680
Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
                                     700
                     695
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 <211> 2397
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 <213> Artificial Sequence
 <220>
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<223> Smad4-EGFP fusion

<220>

<221> CDS

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atg Met	gac Asp	aat Asn	atg Met	Ser	Ile	Thr	Asn	Thr	Pro	Thr	Ser	Asn	Asp	Ala 15	Cys	
1				5				+~~	10	2012	caa	aat	απa		agt	96
ctg Leu	agc Ser	att Ile	Val	His	Ser	Leu	Met	tgc Cys 25	His	Arg	Gln	Gly	Gly 30	Glu	Ser	
			20		202	~~~	a++	gaa	agt	tta	σta	aaσ		ctq	aag	144
Glu	Thr	Phe	Ala	Lys	Arg	Ala	Ile 40	Glu	Ser	Leu	vaı	ьуs 45	гуѕ	Leu	гуѕ	192
Glu	Lys	Lys	Asp	Glu	Leu	Asp 55	Ser	tta Leu	11e	Tnr	A1a	iie	THE	1111	ASII	
gga Gly	act	cat His	cct Pro	agt Ser	Lys	tgt Cys	gtt Val	acc Thr	ata Ile	cag Gln 75	aga Arg	aca Thr	ttg Leu	gat Asp	ggg Bly	240
65					70			~~~	+++		cat	ata	atc	tat		288
Arg	Leu	Gln	Val	Ala 85	Gly	Arg	Lys	gga Gly	90	Pro	HIS	vaı	TIE	95	ALG	
cat	ctc	taa	agg	taa	cct	gat	ctt	cac	aaa	aat	gaa	cta	aaa	cat	gtt	336
Arg	Leu	Trp	Arg	Trp	Pro	Asp	Leu	His 105	Lys	Asn	GIU	ьeu	110	птэ	vaı	224
aaa	tat	tqt	cag	tat	gcg	ttt	gac	tta	aaa	tgt	gat	agt	gtc	tgt	gtg	384
Lys	Tyr	Cys	Gln	Tyr	Ala	Phe	Asp 120	Leu	Lys	Cys	Asp	125	vaı	Cys	Val	432
aat	cca	tat	cac	tac	gaa	cga	gtt	gta	tca	cct	gga	att	gat	CTC	tca	432
Asn	Pro	Tyr	His	Tyr	Glu	Arg 135	Val	Val	Ser	Pro	140	ire	Asp	ьеи	261	480
gga	tta	aca	ctg	cag	agt	aat	gct	cca	tca	agt	atg	atg	gtg	aag	yac Nen	400
Gly	Leu	Thr	Leu	Gln	Ser	Asn	Ala	Pro	Ser	Ser	Met	мет	vai	гуз	Asp 160	
145					150					155	++~	+ ~ ~	act	~==	_	528
gaa Glu	tat Tyr	gtg Val	cat His	Asp	Phe	gag Glu	gga Gly	cag Gln	Pro	Ser	Leu	Ser	Thr	Glu 175	gga	320
				165	2+6	a 2 a	cat	cca			aat	cat	σca		aca	576
His	Ser	Ile	caa Gln 180	Thr	Ile	Gln	His	Pro 185	Pro	Ser	Asn	Arg	Ála 190	ser	Thr	
aaa	202	tac	· add	acc	cca	act	cta	tta	gcc	cca	tct	gag	tct	aat	gct	624
Glu	Thr	Tyr	Ser	Thr	Pro	Ala	Leu 200	Leu	АТа	Pro	Ser	205	i ser	. A51.	ALG	
acc	ago	act	gco	aac	: ttt	ccc	aac	att	cct	gtg	gct	tcc	aca	agt	cag	672
Thr	Ser	Thr	Ala	Asn	. Phe	Pro 215	Asn	lle	Pro	vaı	220	i sei )	1111	. sei	GIII	720
cct	gcc	agt	: ata	a ctg	g ggg	i ado	ago	cat	agt	gaa	gga	CTO	י דרי	o Car	g ata	720
Pro	Ala	Sei	r Ile	e Leu	ı Gly 230	, GT?	, Ser	HIS	sei	235	; r GT ⁷	/ пес	т рес	2 (31)	240	7.60
~~	+	ı gg	g cct	cag	g cca	a gga	a cag	g cag	cac	g aat	gga	a tti	t act	c gg1	cag	768
Ala	a Ser	Gl	y Pro	o Glr 245	n Pro	o Gly	/ Glr	ı Glr	1 G1r 25(	n Asr )	ı Gız	y Phe	2 1111	25	5 GIII	016
cca	a gct	act	t tac	c cat	t cat	aad	c ago	act	aco	acc	tg9	g act	t gga	a ag	t agg	816
Pro	) Ala	Th:	r Ty:	r His O	s His	s Ası	n Sei	r Thi 265	Thi	r Thi	r ur	o Th	27	у зе. О	r Arg	961
act	t gca	a cc	a ta	c aca	a cct	t aa	t tt	g cct	ca	c cad	c caa	a aa	c gg	c ca	t ctt	864
Th	r Ala	27	о Ту: 5	r Th	r Pro	o Asi	n Lei 28	u Pro O	) Hi:	s Hls	5 G11	n As:	n Gi; 5	у пт	s neu	912
ca	g cad	сса	c cc	g cc	t at	g cc	g cc	c cat	CC.	c gga	a ca	t ta	c tg	y cc n ¤∽	t gtt	912
G1:	n His	s Hi	s Pr	o Pr	o Me	t Pr 29	o Pr	o Hi	s Pr	0 G1;	у ні 30	в ту 0	r ir	ры	O Vai	960
са	c aa	t ga	g ct	t gc	a tt	с са	g cc	t cc	c at	L EC	c aa	ı ca		c go	t cct	500

														7.7			
205		Glu			310					315					-	520	1000
		tgg	tat	tcc	att	gct	tac	ttt	gaa	atg	gat	gtt	cag	gt	a c	gga	1008
Glu	Tyr	Trp	Cys	Ser	Ile	Ala	Tyr	Phe	330	мет	Asp	Val	GIII	33	5	эту	
aan	aca	ttt	224	att	cct	tca	aqc	tgc	cct	att	gtt	act	gtt	ga	t q	gga	1056
Glu	Thr	Phe	Lys 340	Val	Pro	Ser	Ser	Cys 345	Pro	Ile	Val	Thr	Val 350	As	p (	Gly	
+	. «+o	gac	cct	tct	aaa	ααa	gat	cac	ttt	tgt	ttg	ggt	caa	ct	C 1	tcc	1104
Tyr	Val	Asp	Pro	Ser	Gly	Gly	Asp 360	Arg	Phe	Cys	Leu	Gly 365	Gln	Le	u	Ser	
		355 cac			~~~	~~~	200	nan	aga	σca	agg		cac	at	a (	ggc	1152
aat	gtc	: cac . His	agg	mb~	Clu	Ala Ala	Tlo	Glu	Ara	Ala	Ara	Leu	His	Il	e (	Gly	
	270	١				375					380						1200
, aaa	a ggt	gtg	cag	ttg -	gaa	tgt	aaa	ggt	Clu	Glv	Asn	Val	Trn	. Va	1.	Ara	
		v Val	Gln	Leu	GIU	Cys	гуу	GIY	GIU	395	нор	vul			_	400	
385	5	agt			390	~+ ~	+++	a+ >	can		tac	tac	tta	αa	ıc.	aga	1248
tgo	c ctt	agt 1 Ser	gac	cac	gcg	gec Val	Dho	Val	Gln	Ser	Tvr	Tvr	Leu	As	g	Arg	
Cys	s Le	ı Ser	Asp	405	Ala	vaı	FIIC	VUL	410	002	- 1 -	-1-		41	.5	-	
		ggg	aat	403	cct	ana	gat	act		cat	aag	ato	tac	cc	ca	agt	1296
gaa	a gc	- 999 a Gly	Ara	Δla	Pro	Glv	Asp	Ala	Val	His	Lys	Ile	Туг	Pı	0	Ser	
			120					425					450	,			
ac	a tai	t ata	220	atc	ttt	gat	ttg	cgt	cag	tgt	cat	cga	cag	r at	g	cag	1344
ηC. Δ1.	a Tv	r Ile	Lvs	Val	Phe	Asp	Leu	Arg	Gln	Cys	His	Arg	Glr	ı M∈	et	Gln	
		135					440					445	,				1200
ca	σ са	~ ~~~	act	act	gca	caa	gct	gca	gca	gct	gcc	cag	gca	ı go	ca	gcc	1392
G1	n Gl	n Ala	Ãla	Thr	Āla	Gln	Ala	Ala	Ala	Ala	Ата	GII	ı Ala	ı A.	la	Ala	
	15	Λ				455					460	1					1440
qt	g gc	o a gga	aac	atc	cct	ggc	cca	gga	tca	gta	ggt	gga	ata	a go	ct	cca	1440
٧a	1 Al	a gya a Gly	Asn	Ile	Pro	Gly	Pro	Gly	Ser	vaı	. ст	, GT2	7 116	e A.	ıа	480	
16	5				470					4/5	)					400	1488
gc	t at	c agt	ctg	tca	gct	gct	gct	gga	att	ggt	gtt	gat Nar	. ya	s Tu	L L	Ara	1100
Al	a Il	e Ser	Leu		Ala	Ala	Ala	GIY	490	СТУ	/ Val	. ASI	J AS	<u>ال</u> ر	95	11119	
				485		1		+++				t a	י ממ			gat	1536
cg	c tt	a tgc u Cys	ata	ctc	agg	atg	agı	Dha	. grg	T.ve	: G)	, Tri	o Gl	v P	ro	Asp	
Ar	g Le	u Cys			Arg	мес	ser	505	, vai	. шус	, 01	,1	51	Ó		•	
		a aga	500		2+0	222	gaa	303	, 	tac	tac	at'	t ga	a a	tt	cac	1584
ta	C CC	a aga o Arg	cag	ago	Tlo	T.vs	Glu	Thr	Pro	CVS	s Tri	o Ile	e Ğl	u I	le	His	
ТУ	r PI	515		Ser	110	Буо	520			- 4	•	52	5				
++			- ~~~	ctc	cad	cto	cta	gac	gaa	gta	a cti	t ca	t ac	са	tg	ccg	1632
T.e	a Co	s Arg	, goo , Ala	Leu	Glr	Leu	Leu	ιÁsp	Glu	ı Val	l Le	u Hi	s Th	r M	et	Pro	
	5.3	10				535	)				34	U					1.000
at			сса	caa	cct	tta	gac	: tgg	g gat	cca	a cc	g gt	c gc	c a	CC	atg	1680
I.	Le Al	a Ası	Pro	Gln	Pro	Let	ı Asp	Tr	Asp	o Pro	o Pr	o Va	ı Al	a T	nr	1100	
5.	15				550	)				55	5					500	1728
gt	g ag	c aa	g ggc	gag	gaç	, ctc	, tto	acc	c gg	g gt	g gt	g cc	c at	CC	Eg	g L C	1/20
Va	al Se	er Ly	s Gly	/ Glu	ı Glı	ı Leı	ı Phe	e Thi	r GT	y va	ı va	T br	0 11	е т	575	val	
				565	5				57	J 	~ ~~	a a+	~ +c				1776
ga	ag ct	g ga	c ggd	gad	gta	a aad	ggo	c ca	c aa	g tt	c ay	r Wa	1 56	r	,9∪ :1v	Glu	
G.	lu Le	eu As			va.	L Ası	J GT	y Hl	е 8 гу	S PII	e 5e	1 10	59	00	<i>- y</i>	014	
			580	נ			~ ~~	58	~ ~+	n 20	c ct	a aa			ato	tac	1824
g	gc g	ag gg lu Gl	c gat	t gcc	ace	c tac	c ggo	c aa	g CC s T.A	y ac n Th	r Le	n Iv	s Ph	ne :	Γle	CVS	
G	ту G			ALA	a 1111	г ту:	60	ט אייא	. пе			60	5		_	-	
		59 cc gg	~ ~~	~ ~+·	T 00	a at	a cc	c ta	a cc	c ac	c ct	c gt	gad	cc a	acc	ctg	1872
a -	cc a	cc gg hr Gl	. aaq	e Tar	y CC	o yo	g Do	0 Tr	p Pr	o Th	r Le	u Va	í Th	ır '	Thr	Leu	
	6	1 ()				61	5				02	. 0					
		10 ac gg	c a+	u c=	a ta	c tt	c ag	c ca	c ta	c cc	c ga	ac ca	ac at	g i	aaç	g cag	1920
a	hr T	ac yy ur cl	v Va	9 Ca	n Cv	s Ph	e Se	r Ar	g Ty	r Pr	o Ās	р Н	is Me	et :	Lуs	3 0111	
6	2.5				63	0				63	33					040	10.50
0	ac d	ac th	c tt	c aa	g tc	c gc	c at	g co	c ga	a gg	jc ta	ac gt	c c	ag	gaç	g cgc	1968
	y					-											

```
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg
            645 650
acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag gtg
                                                                    2016
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val
                                665
aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc atc
                                                                    2064
Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile
                            680
        675
gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac aac
                                                                    2112
Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn
                                           700
                       695
tac aac agc cac aac gtc tat atc atg gcc gac aag cag aag aac ggc
                                                                    2160
Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly
                                        715
                    710
705
atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc gtg
                                                                    2208
Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val
               725
                                    730
cag etc gec gac cac tac cag cag aac acc eec atc ggc gac ggc ecc
                                                                    2256
Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro
                                                    750
                               745
            740
gtg ctg ctg ccc gac aac cac tac ctg agc acc cag tcc gcc ctg agc
                                                                    2304
Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser
                            760
aaa gac ccc aac gag aag cgc gat cac atg gtc ctg ctg gag ttc gtg
                                                                    2352
Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val
                                            780
                        775
acc gcc gcc ggg atc act ctc ggc atg gac gag ctg tac aag taa
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Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
                     790
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<211> 798

<212> PRT

<213> Artificial Sequence

<220>

<223> Smad4-EGFP fusion

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140
                     135
Gly Leu Thr Leu Gln Ser Asn Ala Pro Ser Ser Met Met Val Lys Asp
                          155
         150
Glu Tyr Val His Asp Phe Glu Gly Gln Pro Ser Leu Ser Thr Glu Gly
             165
                                 170
His Ser Ile Gln Thr Ile Gln His Pro Pro Ser Asn Arg Ala Ser Thr
                             185
Glu Thr Tyr Ser Thr Pro Ala Leu Leu Ala Pro Ser Glu Ser Asn Ala
                                           205
                         200
       195
Thr Ser Thr Ala Asn Phe Pro Asn Ile Pro Val Ala Ser Thr Ser Gln
                     215
                                       220
Pro Ala Ser Ile Leu Gly Gly Ser His Ser Glu Gly Leu Leu Gln Ile
                                    235
                 230
Ala Ser Gly Pro Gln Pro Gly Gln Gln Gln Asn Gly Phe Thr Gly Gln
              245
                                 250
Pro Ala Thr Tyr His His Asn Ser Thr Thr Thr Trp Thr Gly Ser Arg
                                  270
                             265
          260
Thr Ala Pro Tyr Thr Pro Asn Leu Pro His His Gln Asn Gly His Leu
              280
      275
Gln His His Pro Pro Met Pro Pro His Pro Gly His Tyr Trp Pro Val
                                       300
                    295
His Asn Glu Leu Ala Phe Gln Pro Pro Ile Ser Asn His Pro Ala Pro
                                     315
       310
Glu Tyr Trp Cys Ser Ile Ala Tyr Phe Glu Met Asp Val Gln Val Gly
                                 330
             325
Glu Thr Phe Lys Val Pro Ser Ser Cys Pro Ile Val Thr Val Asp Gly
                            345
Tyr Val Asp Pro Ser Gly Gly Asp Arg Phe Cys Leu Gly Gln Leu Ser
                          360
                                           365
       355
Asn Val His Arg Thr Glu Ala Ile Glu Arg Ala Arg Leu His Ile Gly
                     375
                                        380
Lys Gly Val Gln Leu Glu Cys Lys Gly Glu Gly Asp Val Trp Val Arg
                                     395
          390
Cys Leu Ser Asp His Ala Val Phe Val Gln Ser Tyr Tyr Leu Asp Arg
                                 410
              405
Glu Ala Gly Arg Ala Pro Gly Asp Ala Val His Lys Ile Tyr Pro Ser
                                     430
                            425
          420
Ala Tyr Ile Lys Val Phe Asp Leu Arg Gln Cys His Arg Gln Met Gln
                                    445
                         440
       435
Gln Gln Ala Ala Thr Ala Gln Ala Ala Ala Ala Gln Ala Ala Ala
                     455
Val Ala Gly Asn Ile Pro Gly Pro Gly Ser Val Gly Gly Ile Ala Pro
                                     475
                  470
Ala Ile Ser Leu Ser Ala Ala Ala Gly Ile Gly Val Asp Asp Leu Arg
                                 490
               485
Arg Leu Cys Ile Leu Arg Met Ser Phe Val Lys Gly Trp Gly Pro Asp
                              505
                                               510
Tyr Pro Arg Gln Ser Ile Lys Glu Thr Pro Cys Trp Ile Glu Ile His
                                            525
                          520
Leu His Arg Ala Leu Gln Leu Leu Asp Glu Val Leu His Thr Met Pro
                                         540
                      535
Ile Ala Asp Pro Gln Pro Leu Asp Trp Asp Pro Pro Val Ala Thr Met
                                     555
                  550
Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val
                                 570
               565
Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu
                            585
Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys
                         600
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu
                                         620
                      615
Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
                   630
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His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg 650 645 Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile 685 680 Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn 700 695 Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly 710 715 Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val 730 725 Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro 740 745 750 Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser 765 760 Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val 775 780 Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys 790 <210> 78 <211> 3138 <212> DNA <213> Artificial Sequence <220> Stat5-EGFP fusion construct <220> CDS <221> <222> (1)..(3135) <400> 78 atg gcg ggc tgg atc cag gcc cag cag ctg cag gga gac gcg ctg cgc 48 Met Ala Gly Trp Ile Gln Ala Gln Gln Leu Gln Gly Asp Ala Leu Arg 10 cag atg cag gtg ctg tac ggc cag cac ttc ccc atc gag gtc cgg cac 96 Gln Met Gln Val Leu Tyr Gly Gln His Phe Pro Ile Glu Val Arg His 25 30 20 144 tac ttg gcc cag tgg att gag agc cag cca tgg gat gcc att gac ttg Tyr Leu Ala Gln Trp Ile Glu Ser Gln Pro Trp Asp Ala Ile Asp Leu 40 35 gac aat ccc cag gac aga gcc caa gcc acc cag ctc ctg gag ggc ctg 192 Asp Asn Pro Gln Asp Arg Ala Gln Ala Thr Gln Leu Leu Glu Gly Leu 55 60 gtg cag gag ctg cag aag aag gcg gag cac cag gtg ggg gaa gat ggg 240 Val Gln Glu Leu Gln Lys Lys Ala Glu His Gln Val Gly Glu Asp Gly 75 70 288 ttt tta ctg aag atc aag ctg ggg cac tac gcc acg cag ctc cag aaa Phe Leu Leu Lys Ile Lys Leu Gly His Tyr Ala Thr Gln Leu Gln Lys

90

8.5

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ccg Pro	gct Ala	ggg Gly	atc Ile	ctg Leu	gtt Val	gac Asp	120 gcc Ala	atg Met	tcc Ser	cag Gln	aag Lys	125 cac His	ctt Leu	cag Gln	atc Ile	432
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cag Gln	gag Glu	agc Ser	ctg Leu 180	agg Arg	atc Ile	caa Gln	gct Ala	cag Gln 185	ttt Phe	gcc Ala	cag Gln	ctg Leu	gcc Ala 190	cag Gln	ctg Leu	576
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aac Asn	Arg	275 cag Gln	cag Gln	atc Ile	cgc Arg	Arg	280 gct Ala	gag Glu	cac His	ctc Leu	Cys	285 cag Gln	cag Gln	ctg Leu	ccc Pro	912
atc Ile	290 ccc Pro	ggc Gly	cca Pro	gtg Val	gag Glu	295 gag Glu	atg Met	ctg Leu	gcc Ala	gag Glu	300 gtc Val	aac Asn	gcc Ala	acc Thr	Ile	960
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caq	cct	cct	cag	325 qtc	ctg Leu	aag	acc	cag	330 acc	aag	ttt	gca	gcc	335 acc	gta	1056
cqc	ctq	ctg	340 gtg	ggc	ggg Gly	aag	ctg	345 aac	gtg	cac	atg	aat	350 ccc	ccc	cag	1104
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agg Arg	aac Asn	atg Met	tca Ser 420	ctg Leu	aag Lys	agg Arg	atc Ile	aag Lys 425	cgt Arg	gct	gac Asp	cgg Arg	cgg Arg 430	ggt Gly	gca	1296

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Pro 465	gtg Val	Val	Val	Ile	gtc Val 470	His	Gly	Ser	Gln	Asp 475	His	Asn	Ala	Thr	Ala 480	1440
Thr	Val	Leu	Trp	Asp 485	aat Asn	Ala	Phe	Ala	Glu 490	Pro	Gly	Arg	Val	Pro 495	Phe	1488
Ala	Val	Pro	Asp 500	Lys	gtg Val	Leu	Trp	Pro 505	Gln	Leu	Cys	Glu	Ala 510	Leu	Asn	1536
Met	Lys	Phe 515	Lys	Ala	gaa Glu	Val	Gln 520	Ser	Asn	Arg	Gly	Leu 525	Thr	Lys	GIu	1584
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Leu 545	Glu	Asp	Tyr	Ser	ggc Gly 550	Leu	Ser	Val	Ser	Trp 555	Ser	Gln	Phe	Asn	Arg 560	1728
Glu	Asn	Leu	Pro	Gly 565	tgg Trp	Asn	Tyr	Thr	Phe 570	Trp	Gln	Trp	Phe	Asp 575	GIÀ	1776
Val	Met	Glu	Val 580	Leu	aag Lys gtg	Lys	His	His 585	Lys	Pro	His	Trp	Asn 590	Asp	GLY	1824
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Asn	Lys 610	Pro	Asp	Gly	Thr	Phe 615	Leu	Leu	Arg	Phe	Ser 620	Asp	Ser	GIu	lie	1920
Gly 625	Gly	Ile	Thr	Ile	Ala 630 ttc	Trp	Lys	Phe	Asp	Ser 635	Pro	Glu	Arg	Asn	Leu 640	1968
Trp	Asn	Leu	Lys	Pro 645	Phe	Thr	Thr	Arg	Asp 650	Phe	Ser	Ile	Arg	Ser 655	Leu	2016
Ala	Asp	Arg	Leu 660	Gly	Asp gtc	Leu	Ser	Tyr 665	Leu	Ile	Tyr	Val	Phe 670	Pro	Asp	2064
Arg	Pro	Lys 675 att	Asp gat	Glu gga	Val tat	Phe gtg	Ser 680 aaa	Lys cca	Tyr cag	Tyr atc	Thr aag	Pro 685 caa	Val gtg	Leu gtc	cct	2112
Lys	Ala 690	Val	. Asp	Gly	Tyr tct	Val 695 gca	Lys	Pro	Gln ggg	lle ggc	Lys 700 agc	Gln agc	Val	. Val : acg	tac	2160
Glu 705	Phe	Val	. Asr	Ala	Ser 710 tcc	Ala Cca	Asp gct	Ala gtg	Gly rtgc	Gly 715 CCC	Ser caç	: Ser , gct	. ccc	Thr tat	720 aac	2208
Met	Asp	Glr	n Ala	725 1 aac	Ser 5 c cct	Pro	Ala cat	a Val	730 Cto	s Pro ) ; gat	Glr caç	n Ala ggat	Pro	735 a gaa	Asn ttc	2256
Met	Tyr	Pro	740 740	n Asi ) n acc	n Pro	Asp	His ato	Val 745 g qcq	Let ago	ı Asp	Glr gtg	n Asp g gag	GLS 750 g gaa	/ Glu ) a cto	tta	2304
Asp	D Lei	755	o Glu	Thi	r Met	Asp	760	l Ala	a Ar	g His	s Val	1 Glu 765	ı Glı	ı Lev	ı Leu	

cgc Arg	cga Arg 770	cca Pro	atg Met	gac Asp	agt Ser	ctt Leu 775	gac Asp	tcc Ser	cgc Arg	ctc Leu	tcg Ser 780	ccc Pro	cct Pro	gcc Ala	ggt Gly	2352
ctt Leu 785	ttc Phe	acc Thr	tct Ser	gcc Ala	aga Arg 790	ggc Gly	tcc Ser	ctc Leu	tca Ser	tgg Trp 795	gta Val	ccg Pro	cgg Arg	gcc Ala	cgg Arg 800	2400
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	acc Thr 101	ca Gl	g tc n Se				r L	aa g ys A			sn G			cgc Arg		3069
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## <223> Stat5-EGFP fusion construct

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Pro Val Val Ile Val His Gly Ser Gln Asp His Asn Ala Thr Ala
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                                       475
Thr Val Leu Trp Asp Asn Ala Phe Ala Glu Pro Gly Arg Val Pro Phe
                                   490
Ala Val Pro Asp Lys Val Leu Trp Pro Gln Leu Cys Glu Ala Leu Asn
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                               505
Met Lys Phe Lys Ala Glu Val Gln Ser Asn Arg Gly Leu Thr Lys Glu
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Asn Leu Val Phe Leu Ala Gln Lys Leu Phe Asn Asn Ser Ser Ser His
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                                           540
Leu Glu Asp Tyr Ser Gly Leu Ser Val Ser Trp Ser Gln Phe Asn Arg
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Glu Asn Leu Pro Gly Trp Asn Tyr Thr Phe Trp Gln Trp Phe Asp Gly
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Val Met Glu Val Leu Lys Lys His His Lys Pro His Trp Asn Asp Gly
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Ala Ile Leu Gly Phe Val Asn Lys Gln Gln Ala His Asp Leu Leu Ile
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Gly Gly Ile Thr Ile Ala Trp Lys Phe Asp Ser Pro Glu Arg Asn Leu
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Trp Asn Leu Lys Pro Phe Thr Thr Arg Asp Phe Ser Ile Arg Ser Leu
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Arg Pro Lys Asp Glu Val Phe Ser Lys Tyr Tyr Thr Pro Val Leu Ala
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Lys Ala Val Asp Gly Tyr Val Lys Pro Gln Ile Lys Gln Val Val Pro
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Glu Phe Val Asn Ala Ser Ala Asp Ala Gly Gly Ser Ser Ala Thr Tyr
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Met Asp Gln Ala Pro Ser Pro Ala Val Cys Pro Gln Ala Pro Tyr Asn
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Met Tyr Pro Gln Asn Pro Asp His Val Leu Asp Gln Asp Gly Glu Phe
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Asp Leu Asp Glu Thr Met Asp Val Ala Arg His Val Glu Glu Leu Leu
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Arg Arg Pro Met Asp Ser Leu Asp Ser Arg Leu Ser Pro Pro Ala Gly
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Leu Phe Thr Ser Ala Arg Gly Ser Leu Ser Trp Val Pro Arg Ala Arg
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Asp Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu Phe Thr
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Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His
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Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys
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Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp
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                                           860
Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg
                   870
                                       875
Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro
               885
                                    890
Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn
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Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn
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                                               925
Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu
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Ser	Thr 101		n Se:	r Ala	a Lei	1 Sei 101		ys As	sp P	ro As		lu 020	Lys .	Arg .	Asp	
His	Met		l Le	u Lei	ı Glu	1 Phe		al Ti	nr A	la A		ly 035	Ile	Thr :	Leu	
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 gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                       96
 Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                 25
             20
                                                                       144
 gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
 Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                                                 45
                             40
                                                                       192
 tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
                         55
                                              60
                                                                       240
 ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
 Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
                                          75
                      70
 cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
                                                                       288
 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
                                      90
                  85
  cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
                                                                       336
  Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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110

105

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gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc
                                                                      384
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
                            120
        115
atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac
                                                                      432
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
                       135
aac tac aac agc cac aac gtc tat atc atg gcc gac aag cag aag aac
                                                                      480
Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
                                        155
                    150
ggc atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc
                                                                      528
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
                                    170
                165
                                                                      576
gtg cag ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
                                                    190
                                185
ccc gtg ctg ccc gac aac cac tac ctg agc acc cag tcc gcc ctg
                                                                      624
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
                                                 205
                            200
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age aaa gae eec aac gag aag ege gat eac atg gte etg etg gag tte
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
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gtg acc gcc gcc ggg atc act ctc ggc atg gac gag ctg tac aag tcc
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Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
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                    230
gga ctc aga tct cga gct caa gct tcg aat tcg gcg atg cca gac ccc
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Gly Leu Arg Ser Arg Ala Gln Ala Ser Asn Ser Ala Met Pro Asp Pro
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                245
geg geg cae etg eee tte tte tae gge age ate teg egt gee gag gee
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Ala Ala His Leu Pro Phe Phe Tyr Gly Ser Ile Ser Arg Ala Glu Ala
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gag gag cac ctg aag ctg gcg ggc atg gcg gac ggg ctc ttc ctg ctg
                                                                      864
Glu Glu His Leu Lys Leu Ala Gly Met Ala Asp Gly Leu Phe Leu Leu
                                                 285
                             280
        275
                                                                      912
cgc cag tgc ctg cgc tcg ctg ggc ggc tat gtg ctg tcg ctc gtg cac
Arg Gln Cys Leu Arg Ser Leu Gly Gly Tyr Val Leu Ser Leu Val His
                                             300
                        295
gat gtg cgc ttc cac cac ttt ccc atc gag cgc cag ctc aac ggc acc
                                                                       960
Asp Val Arg Phe His His Phe Pro Ile Glu Arg Gln Leu Asn Gly Thr
                                         315
305
                     310
 tac gcc att gcc ggc ggc aaa gcg cac tgt gga ccg gca gag ctc tgc
                                                                      1008
 Tyr Ala Ile Ala Gly Gly Lys Ala His Cys Gly Pro Ala Glu Leu Cys
                                     330
                325
 gag ttc tac tcg cgc gac ccc gac ggg ctg ccc tgc aac ctg cgc aag
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 Glu Phe Tyr Ser Arg Asp Pro Asp Gly Leu Pro Cys Asn Leu Arg Lys
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                                                      350
             340
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 ccg tgc aac cgg ccg tcg ggc ctc gag ccg cag ccg ggg gtc ttc gac
Pro Cys Asn Arg Pro Ser Gly Leu Glu Pro Gln Pro Gly Val Phe Asp
                             360
 tgc ctg cga gac gcc atg gtg cgt gac tac gtg cgc cag acg tgg aag
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 Cys Leu Arg Asp Ala Met Val Arg Asp Tyr Val Arg Gln Thr Trp Lys
                                             380
                         375
 ctg gag ggc gag gcc ctg gag cag gcc atc atc agc cag gcc ccg cag
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 Leu Glu Gly Glu Ala Leu Glu Gln Ala Ile Ile Ser Gln Ala Pro Gln
                     390
                                          395
 gtg gag aag ctc att gct acg acg gcc cac gag cgg atg ccc tgg tac
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 Val Glu Lys Leu Ile Ala Thr Thr Ala His Glu Arg Met Pro Trp Tyr
                                     410
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 cac agc agc ctg acg cgt gag gag gcc gag cgc aaa ctt tac tct ggg
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 His Ser Ser Leu Thr Arg Glu Glu Ala Glu Arg Lys Leu Tyr Ser Gly
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                                                      430
             420
                                                                      1344
 gcg cag acc gac ggc aag ttc ctg ctg agg ccg cgg aag gag cag ggc
 Ala Gln Thr Asp Gly Lys Phe Leu Leu Arg Pro Arg Lys Glu Gln Gly
                                                  445
                              440
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Thr	Tyr 450	Ala	ctg Leu	Ser	Leu	Ile 455	Tyr	Gly	Lys	Thr	Val 460	Tyr	His	Tyr	Leu	1392
Ile 465	Ser	Gln	gac Asp	Lys	Ala 470	Gly	Lys	Tyr	Cys	Ile 475	Pro	Glu	Gly	Thr	Lys 480	1440
Phe	Asp	Thr	ctc Leu	Trp 485	Gln	Leu	Val	Glu	Tyr 490	Leu	Lys	Leu	Lys	Ala 495	Asp	1488
Gly	Leu	Ile	tac Tyr 500	Cys	Leu	Lys	Glu	Ala 505	Cys	Pro	Asn	Ser	Ser 510	Ala	Ser	1536
Asn	Ala	Ser 515	GJ À dàd	Ala	Ala	Ala	Pro 520	Thr	Leu	Pro	Ala	His 525	Pro	Ser	Thr	1584
Leu	Thr 530	His	cct Pro	Gln	Arg	Arg 535	Ile	Asp	Thr	Leu	Asn 540	Ser	Asp	Gly	Tyr	1632
Thr 545	Pro	Glu	cca Pro	Ala	Arg 550	Ile	Thr	Ser	Pro	Asp 555	Lys	Pro	Arg	Pro	Met 560	1680
Pro	Met	Asp	acg Thr	Ser 565	Val	Tyr	Glu	Ser	Pro 570	Tyr	Ser	Asp	Pro	Glu 575	Glu	1728
Leu	Lys	Asp	aag Lys 580	Lys	Leu	Phe	Leu	Lys 585	Arg	Asp	Asn	Leu	Leu 590	Ile	Ala	1776
Asp	Ile	Glu 595	ctt Leu	Gly	Суѕ	Gly	Asn 600	Phe	Gly	Ser	Val	Arg 605	Gln	Gly	Val	1824
Tyr	Arg 610	Met	cgc Arg	Lys	Lys	Gln 615	Ile	Asp	Val	Ala	Ile 620	Lys	Val	Leu	Lys	1872
Gln 625	Gly	Thr	gag Glu	Lys	Ala 630	Asp	Thr	Glu	Glu	Met 635	Met	Arg	Glu	Ala	Gln 640	1920
Ile	Met	His	cag Gln	Leu 645	Asp	Asn	Pro	Tyr	Ile 650	Val	Arg	Leu	Ile	Gly 655	Val	1968
Cys	Gln	Ala	gag Glu 660	Ala	Leu	Met	Leu	Val 665	Met	Glu	Met	Ala	Gly 670	Gly	Gly	2016
Pro	Leu	His 675		Phe	Leu	Val	Gly 680	Lys	Arg	Glu	Glu	11e 685	Pro	Val	Ser	2064
Asn	Val 690	Ala	gag Glu	Leu	Leu	His 695	Gln	Val	Ser	Met	Gly 700	Met	Lys	Tyr	Leu	2112
Glu 705	Glu	Lys	aac Asn	Phe	Val 710	His	Arg	Asp	Leu	Ala 715	Ala	Arg	Asn	Val	Leu 720	2208
Leu	Val	Asn	cgg Arg	His 725	Tyr	Ala	Lys	Ile	Ser 730	Asp	Phe	Gly	Leu	Ser 735	Lys	
Ala	Leu	Gly	gcc Ala 740	Asp	Asp	Ser	Tyr	Tyr 745	Thr	Ala	Arg	Ser	750	Gly	Lys	2256
Trp	Pro	Leu 755		Trp	Tyr	Ala	Pro 760	Glu	Cys	Ile	Asn	Phe 765	Arg	Lys	Phe	2304
tcc Ser	ago Ser 770	Arg	: agc ; Ser	gat Asp	gtc Val	Trp 775	Ser	tat Tyr	Gly	gtc Val	acc Thr 780	Met	tgg Trp	gag Glu	gcc Ala	2352

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ttg tcc tac ggc cag aag ccc tac aag aag atg aaa ggg ccg gag gtc
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Leu Ser Tyr Gly Gln Lys Pro Tyr Lys Lys Met Lys Gly Pro Glu Val
                   790
                                        795
                                                                     2448
atg gcc ttc atc gag cag ggc aag cgg atg gag tgc cca cca gag tgt
Met Ala Phe Ile Glu Gln Gly Lys Arg Met Glu Cys Pro Pro Glu Cys
                                    810
               805
cca ccc gaa ctg tac gca ctc atg agt gac tgc tgg atc tac aag tgg
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Pro Pro Glu Leu Tyr Ala Leu Met Ser Asp Cys Trp Ile Tyr Lys Trp
                                825
           820
gag gat cgc ccc gac ttc ctg acc gtg gag cag cgc atg cga gcc tgt
                                                                     2544
Glu Asp Arg Pro Asp Phe Leu Thr Val Glu Gln Arg Met Arg Ala Cys
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                                                845
        835
                                                                     2592
tac tac agc ctg gcc agc aag gtg gaa ggg ccc cca ggc agc aca cag
Tyr Tyr Ser Leu Ala Ser Lys Val Glu Gly Pro Pro Gly Ser Thr Gln
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Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
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            230
Gly Leu Arg Ser Arg Ala Gln Ala Ser Asn Ser Ala Met Pro Asp Pro
                               250
Ala Ala His Leu Pro Phe Phe Tyr Gly Ser Ile Ser Arg Ala Glu Ala
                              265
           260
Glu Glu His Leu Lys Leu Ala Gly Met Ala Asp Gly Leu Phe Leu Leu
                           280
Arg Gln Cys Leu Arg Ser Leu Gly Gly Tyr Val Leu Ser Leu Val His
                       295
Asp Val Arg Phe His His Phe Pro Ile Glu Arg Gln Leu Asn Gly Thr
                                      315
                   310
Tyr Ala Ile Ala Gly Gly Lys Ala His Cys Gly Pro Ala Glu Leu Cys
                                  330
               325
Glu Phe Tyr Ser Arg Asp Pro Asp Gly Leu Pro Cys Asn Leu Arg Lys
                                                350
                              345
            340
Pro Cys Asn Arg Pro Ser Gly Leu Glu Pro Gln Pro Gly Val Phe Asp
                           360
Cys Leu Arg Asp Ala Met Val Arg Asp Tyr Val Arg Gln Thr Trp Lys
                                          380
                       375
Leu Glu Gly Glu Ala Leu Glu Gln Ala Ile Ile Ser Gln Ala Pro Gln
                                      395
                   390
Val Glu Lys Leu Ile Ala Thr Thr Ala His Glu Arg Met Pro Trp Tyr
                                  410
              405
His Ser Ser Leu Thr Arg Glu Glu Ala Glu Arg Lys Leu Tyr Ser Gly
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                               425
           420
Ala Gln Thr Asp Gly Lys Phe Leu Leu Arg Pro Arg Lys Glu Gln Gly
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 Thr Tyr Ala Leu Ser Leu Ile Tyr Gly Lys Thr Val Tyr His Tyr Leu
                                           460
                       455
 Ile Ser Gln Asp Lys Ala Gly Lys Tyr Cys Ile Pro Glu Gly Thr Lys
                                       475
                   470
 Phe Asp Thr Leu Trp Gln Leu Val Glu Tyr Leu Lys Leu Lys Ala Asp
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                485
 Gly Leu Ile Tyr Cys Leu Lys Glu Ala Cys Pro Asn Ser Ser Ala Ser
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            500
 Asn Ala Ser Gly Ala Ala Ala Pro Thr Leu Pro Ala His Pro Ser Thr
                           520
 Leu Thr His Pro Gln Arg Arg Ile Asp Thr Leu Asn Ser Asp Gly Tyr
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 Thr Pro Glu Pro Ala Arg Ile Thr Ser Pro Asp Lys Pro Arg Pro Met
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 Pro Met Asp Thr Ser Val Tyr Glu Ser Pro Tyr Ser Asp Pro Glu Glu
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 Leu Lys Asp Lys Lys Leu Phe Leu Lys Arg Asp Asn Leu Leu Ile Ala
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            580
 Asp Ile Glu Leu Gly Cys Gly Asn Phe Gly Ser Val Arg Gln Gly Val
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                            600
 Tyr Arg Met Arg Lys Lys Gln Ile Asp Val Ala Ile Lys Val Leu Lys
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                        615
 Gln Gly Thr Glu Lys Ala Asp Thr Glu Glu Met Met Arg Glu Ala Gln
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                    630
 Ile Met His Gln Leu Asp Asn Pro Tyr Ile Val Arg Leu Ile Gly Val
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                                    650
 Cys Gln Ala Glu Ala Leu Met Leu Val Met Glu Met Ala Gly Gly
                                                   670
                               665
 Pro Leu His Lys Phe Leu Val Gly Lys Arg Glu Glu Ile Pro Val Ser
                                                685
                            680
  Asn Val Ala Glu Leu Leu His Gln Val Ser Met Gly Met Lys Tyr Leu
                                            700
                        695
  Glu Glu Lys Asn Phe Val His Arg Asp Leu Ala Ala Arg Asn Val Leu
                                         715
                     710
  Leu Val Asn Arg His Tyr Ala Lys Ile Ser Asp Phe Gly Leu Ser Lys
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730
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Ala Leu Gly Ala Asp Asp Ser Tyr Tyr Thr Ala Arg Ser Ala Gly Lys
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            740
Trp Pro Leu Lys Trp Tyr Ala Pro Glu Cys Ile Asn Phe Arg Lys Phe
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                            760
        755
Ser Ser Arg Ser Asp Val Trp Ser Tyr Gly Val Thr Met Trp Glu Ala
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                        775
Leu Ser Tyr Gly Gln Lys Pro Tyr Lys Lys Met Lys Gly Pro Glu Val
                                        795
                   790
Met Ala Phe Ile Glu Gln Gly Lys Arg Met Glu Cys Pro Pro Glu Cys
                                    810
                805
Pro Pro Glu Leu Tyr Ala Leu Met Ser Asp Cys Trp Ile Tyr Lys Trp
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            820
Glu Asp Arg Pro Asp Phe Leu Thr Val Glu Gln Arg Met Arg Ala Cys
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 cgt gcc gag gcc gag gag cac ctg aag ctg gcg ggc atg gcg gac ggg
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 Arg Ala Glu Ala Glu Glu His Leu Lys Leu Ala Gly Met Ala Asp Gly
                                  25
             20
  ctc ttc ctg ctg cgc cag tgc ctg cgc tcg ctg ggc ggc tat gtg ctg
                                                                       144
  Leu Phe Leu Leu Arg Gln Cys Leu Arg Ser Leu Gly Gly Tyr Val Leu
                                                  45
  tcg ctc gtg cac gat gtg cgc ttc cac cac ttt ccc atc gag cgc cag
                                                                       192
  Ser Leu Val His Asp Val Arg Phe His His Phe Pro Ile Glu Arg Gln
                                              60
                          55
  ctc aac ggc acc tac gcc att gcc ggc ggc aaa gcg cac tgt gga ccg
                                                                        240
  Leu Asn Gly Thr Tyr Ala Ile Ala Gly Gly Lys Ala His Cys Gly Pro
                                          75
                      70
  gca gag etc tgc gag ttc tac tcg cgc gac ecc gac ggg ctg ecc tgc
                                                                        288
  Ala Glu Leu Cys Glu Phe Tyr Ser Arg Asp Pro Asp Gly Leu Pro Cys
                                      90
                  8.5
  aac ctg cgc aag ccg tgc aac cgg ccg tcg ggc ctc gag ccg cag ccg
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		115					120					125				432
Gln	Thr	Trp	Lys	ctg Leu	Glu	Gly 135	Glu	Ala	Leu	GIU	140	АІА	116	116	361	
caq	acc	ccq	cag	gtg	gag	aag	ctc	att	gct	acg	acg	gcc	cac	gag	cgg	480
Gln	Ála	Pro	Gln	Val	Glu 150	Lys	Leu	Ile	Ala	Thr 155	Thr	Ala	His	Glu	Arg 160	
145	~~~	+ ~~	+ 2 C	cac	100	agc	cta	acq	cat		gag	gcc	gag	cgc	aaa	528
Met	Pro	Trp	Tyr	His 165	Ser	Ser	Leu	Thr	Arg 170	Glu	Glu	Ála	Ğlü	Arg 175	Lys	
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Lys	Glu	Gln 195	Gly	Thr	Tyr	Ala	Leu 200	Ser	Leu	IIe	Tyr	205	ьуs	THE	Val	
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Tyr	His	Tyr	Leu	Ile	Ser	Gln 215	Asp	Lys	Ala	GLY	ьуs 220	туr	Cys	шe	PIO	720
gag	ggc	acc	aag	ttt	gac	acg	ctc	tgg	cag	ctg	gtg	gag	tat	ctg	aag	720
Glu	Gly	Thr	Lys	Phe	Asp	Thr	Leu	Trp	Gln	Leu	vaı	GLu	Tyr	Leu	ьуs 240	
225					230			+ ~ ~	a+ ~	235		acc	tac	CCC		768
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				245					250					255		
age	agt	acc	aσc	aac	gcc	tca	ggg	gct	gct	gct	ccc	aca	ctc	cca	gcc	816
Ser	Ser	Ala	Ser 260	Asn	Ala	Ser	GLY	265	Ата	Ата	PIO	1111	270	FIO	ALG	0.54
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Ser			Tyr	Thr	Pro	G1u 295	Pro	А1а	Arg	116	300	. sei	FIC	, war	Lys	
	290	) - 001	- a+a		ata	793	aco	ago	ato	r tat			ccc	: tac	agc	960
CCG	) Cgc	Dr	, acy	Pro	Met	Asp	Thr	Ser	Val	Туг	Gli	Ser	Pro	Tyr	Ser	
305	:				310					315	)				320	
420		a ga	ggag	cto	aag	gac	aag	gaag	cto	tto	cto	g aag	g cgc	gat	aac	1008
Asp	Pro	Gl:	ı Glu	1 Leu 325	Lys	Asp	Lys	s Lys	ьеі 33(	ı Pne )	е тел	т г	s ALC	335	) ASII	1056
cto	cto	ata	a gct	gac	att	. gaa	ctt	ggc	: tgo	gge	c aad	c tti	ggo	t Ca	gtg	1056
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aaq	g gt	g ct	g aa	g cag	ggg	acq	g gad	g aaq	g gc	a ga	c ac	g ga ∽ cl	a ga	y ac	g atg	1132
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cg	c ga	g gc	g ca	g ato	cate	g ca	c ca	g ct	g ga	c aa	C CC	C La	c at	o Va	g cgg	1200
		u Al	a Gl	n Ile	e Met 390	t Hi.	s GI	n re	u As	р AS 39	11 F.L	Оту		c va	1 Arg 400	
38	5	± ~~	a at	a ta	221	ים מכי	c da	a ac	c ct			a at	c at	g ga	g atg	1248
Ct	c at	t gg	c gu	1 00	e Gli	n Al	a Gl	y 90 u Al	a Le	u Me	t Le	u Va	l Me	t Gl	u Met	
				40	5				41	0				4 1	J	
ac	t aa	a ac	ic da	a cc	a ct	g ca	c aa	g tt	c ct	g gt	c gg	c aa	g ag	g ga	g gag	1296
Al	a Gl	.у G]	y Gl. 42	y Pr	o Le	u Hi	s Ly	s Ph 42	е Le 5	u Va	I GI	.у гу	43	0	u Giu	
at	.c cc	t gt	g ag	c aa	t gt	g gc	c ga	g ct	g ct	g ca	c ca	ıg gt	g to	c at	g ggg	1344

Ile	Pro	Val 435	Ser	Asn	Val		Glu 440	Leu	Leu	His	Gln	Val 445	Ser	Met	Gly	
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cgc	aac Asn	gtc Val	ctg	Leu	gtt Val	aac Asn	arg Arg	His	Tyr	Ala	Lys	Ile	Ser	Asp	Phe	
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ggc	ctc	tcc	aaa	gca	ctg	ggt	gcc	gac	gac	agc	tac	tac	act Thr	gcc	cgc Ara	1488
Gly	Leu	Ser	гÀг	485	Leu	GIÀ	Ala	Asp	490	261	TYL	1 y L		495	••• 5	
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gcc	acc	atg	gtg	agc	aag Lys	ggc	gag	gag	ctg	ttc	acc Thr	ggg	gtg Val	gtg Val	ccc Pro	1920
A1a 625		Met	vaı	ser	ьуs 630	сту	GIU	GIU	пеа	635	1111	O. J			640	
ato	cta	gtc	gag	ctg	σac	ggc	gac	gta	aac	ggc	cac	aag	ttc	ago	gtg	1968
Ile	Leu	Val	Glu			Gly	Asp	Val	Asn 650	Gly	His	Lys	Phe	655	Val	
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Phe	: alc	Cys	Thr	Thr	Gly	Lys	Leu	Pro	Val	Pro	Tr	Pro	Thr	Leu	val	
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	690	)				695	,				700	)				01.00
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aa T.v	g ggo s Gl	at v Il	e Ası	o Phe	e Lys	g gay	ı Ası	o Gl	y As	n Il	e Le	u Gl	y Hi	s Ly	s Leu	
_		75	5				76	0				76	5			
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                                       795
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Ser Leu Val His Asp Val Arg Phe His His Phe Pro Ile Glu Arg Gln
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Leu Asn Gly Thr Tyr Ala Ile Ala Gly Gly Lys Ala His Cys Gly Pro
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                                        75
 Ala Glu Leu Cys Glu Phe Tyr Ser Arg Asp Pro Asp Gly Leu Pro Cys
                                    90
 Asn Leu Arg Lys Pro Cys Asn Arg Pro Ser Gly Leu Glu Pro Gln Pro
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 Gly Val Phe Asp Cys Leu Arg Asp Ala Met Val Arg Asp Tyr Val Arg
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                            120
 Gln Thr Trp Lys Leu Glu Gly Glu Ala Leu Glu Gln Ala Ile Ile Ser
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 Gln Ala Pro Gln Val Glu Lys Leu Ile Ala Thr Thr Ala His Glu Arg
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 Met Pro Trp Tyr His Ser Ser Leu Thr Arg Glu Glu Ala Glu Arg Lys
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His Pro Ser Thr Leu Thr His Pro Gln Arg Arg Ile Asp Thr Leu Asn
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Pro Arg Pro Met Pro Met Asp Thr Ser Val Tyr Glu Ser Pro Tyr Ser
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                                    650
Ser Gly Glu Gly Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys
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Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser
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Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu
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Val Val Tyr Lys Ala Arg Asn Lys Leu Thr Gly Glu Val Val Ala Leu
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                                25
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Lys Lys Ile Arg Leu Asp Thr Glu Thr Glu Gly Val Pro Ser Thr Ala
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Lys Leu Leu Asp Val Ile His Thr Glu Asn Lys Leu Tyr Leu Val Phe
                    70
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gaa ttt ctg cac caa gat ctc aag aaa ttc atg gat gcc tct gct ctc
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Glu											_		_		T	
Giu	Phe	Leu	His	Gln 85	Asp	Leu	Lys	Lys	Phe 90	Met	Asp	Ala	Ser	A1a 95	Leu	
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act mb	Gly	TIO	Dwa	Tan	Dro	Tou	Tlo	Tue	Sar	Tur	T.011	Phe	Gln	Leu	Leu	
Thr	сту	тте		ьеи	PIO	цец	116		Jer	ı yı	пси	1110	110			
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cag	ggc	cta	gct	ttc	tgc	cat	tct	cat	cgg	gtc	ctc	cac	cga	gac	CLL	384
Gln	Gly	Leu	Ala	Phe	Cys	His	Ser	His	Arg	Val	Leu	His	Arg	Asp	Leu	
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aaa	Pro	cay	2	Tan	T 0	Tla	7.00	Thr	Clu	C14	7.12	Tla	T.VS	T.e.11	Ãla	
ьys		GIN	Asn	Leu	Leu		ASII	TIIT	GIU	Gry		116	цуз	пси	1114	
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cat	Glu	919	919	mb-	Tan	m~~	T	7.50	712	Dro	Glu	Tle	T.e.11	T.e.ii	Ğĺv	
HIS	GIU	vai	Val		пеп	пр	ıyı	ALG		LLO	Oru	110	шоч	175	U-1	
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tcg	aaa	tat	tat	tcc	aca	gct	gtg	gac	atc	tgg	agc	ctg	ggc	tgc	atc	576
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רבנ	ycc	gag	aty	919	mb	7 ~~	7~~	712	Tou	Dho	Dro	Glv	Agn	Ser	Glu	
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Lvs	Arg	Ile	Ser	Ala	Lys	Ala	Ala	Leu	Ala	His	Pro	Phe	Phe	Gln	Asp	
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acc Thr 305 ctg Leu	Thr 290 atg Met gtc Val	Lys gtg Val gag Glu	Pro agc Ser ctg Leu	aag Lys gac Asp 325	ggc Gly 310 ggc Gly	His 295 gag Glu gac Asp	ctt Leu gag Glu gta Val	ctg Leu aac Asn	ttc Phe ggc Gly 330 ggc	Trp acc Thr 315 cac His	Asp 300 ggg Gly aag Lys	Pro gtg Val ttc Phe	Pro gtg Val agc Ser ctg Leu	ccc Pro gtg Val 335 aag Lys	atc Ile 320 tcc Ser	960 1008
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acc Thr 305 ctg Leu ggc Gly atc Ile	Thr 290 atg Met gtc Val gag Glu tgc Cys	Lys gtg Val gag Glu ggc Gly acc Thr 355	Pro agc Ser ctg Leu gag Glu 340 acc Thr	aag Lys gac Asp 325 ggc Gly	ggc Gly 310 ggc Gly gat Asp aag Lys	His 295 gag Glu gac Asp gcc Ala ctg Leu	ctt Leu gag Glu gta Val acc Thr ccc Pro 360	ctg Leu aac Asn tac Tyr 345 gtg Val	ttc Phe ggc Gly 330 ggc Gly ccc Pro	Trp acc Thr 315 cac His aag Lys tgg Trp cgc	Asp 300 ggg Gly aag Lys ctg Leu ccc Pro	gtg Val ttc Phe acc Thr acc Thr 365	gtg Val agc Ser ctg Leu 350 ctc Leu gac	ccc Pro gtg Val 335 aag Lys gtg Val	atc Ile 320 tcc Ser ttc Phe acc Thr atg	960 1008 1056
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acc Thr 305 ctg Leu ggc Gly atc Ile acc Thr aag	Thr 290 atg Met gtc Val gag Glu tgc Cys ctg Leu 370 Gln	gtg Val gag Glu ggc Gly acc Thr 355 acc Thr	e tac	aag Lys gac Asp 325 ggc Gly ggc Gly	ggc Gly 310 ggc Gly gat Asp aag Lys yal ttc Phe	His 295 gag Glu gac Asp gcc Ala ctg Leu cag Gln 375 aag Lys	gag Glu gta Val acc Thr ccc Pro 360 tgc Cys	ctg Leu aac Asn tac Tyr 345 gtg Val ttc Phe	ttc Phe ggc Gly 330 ggc Gly ccc Pro agc Ser atg	Trp acc Thr 315 cac His aag Lys tgg Trp cgc Arg	Asp 300 ggg Gly aag Lys ctg Leu ccc Pro tac Tyr 380 gaa Glu	gtg Val ttc Phe acc Thr 365 ccc Pro	gtg Val agc Ser ctg Leu 350 ctc Leu gac Asp	ccc Pro gtg Val 335 aag Lys gtg Val cac His	atc Ile 320 tcc Ser ttc Phe acc Thr atg Met cag Gln 400	960 1008 1056 1104 1152 1200
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acc Thr 305 ctg Leu ggc Gly atc Ile acc Thr aags 385 gag	Thr 290 atg Met gtc Val gag Glu tgc Cys ctg Leu 370 cag Gln cgc Arg	gtg Val gag Glu ggc Gly according to the Cart His according to the Car	Pro agc Ser ctg Leu gag Glu 340 acc Thr tac Tyr gac Asp	aag Lys gac Asp 325 ggc Gly ggc Gly ttc Phe	ggc Gly 310 ggc Gly gat Asp aag Lys val ttc Phe 390 ttc	His 295 gag Glu gac Asp gcc Ala ctg Leu cag Gln 375 a Lys	gag Glu gta Val acc Thr ccc Pro 360 tgc Cys tcc Ser gac Asp	acc Asn tac Tyr 345 gtg Val ttc Phe Alac Asp	ttc Phe ggc Gly 330 ggc Gly ccc Pro agc Ser atg Met	Trp acc Thr 315 cac His aag Lys tgg Trp cgc Arg ccc Pro 395 aac	Asp 300 ggg Gly aag Lys ctg Leu ccc Pro tac Tyr 380 gaa Glu	gtg Val ttc Phe acc Thr acc Thr 365 ccc Pro	gtg Val agc Ser ctg Leu 350 ctc Leu gac Asp	ccc Pro gtg Val 335 aag Lys gtg Val cac His ct Val	atc Ile 320 tcc Ser ttc Phe acc Thr atg Met cag Gln 400 gcc Ala	960 1008 1056 1104 1152 1200
acc Thr 305 ctg Leu ggc Gly atc Ile acc Thr aags 385 gag	Thr 290 atg Met gtc Val gag Glu tgc Cys ctg Leu 370 cag Gln cgc Arg	gtg Val gag Glu ggc Gly according to the Cart His according to the Car	Pro agc Ser ctg Leu gag Glu 340 acc Thr tac Tyr gac Asp	aag Lys gac Asp 325 ggc Gly ggc Gly ttc Phe	ggc Gly 310 ggc Gly gat Asp aag Lys val ttc Phe 390 ttc	His 295 gag Glu gac Asp gcc Ala ctg Leu cag Gln 375 a Lys	gag Glu gta Val acc Thr ccc Pro 360 tgc Cys tcc Ser gac Asp	acc Asn tac Tyr 345 gtg Val ttc Phe Alac Asp	ttc Phe ggc Gly 330 ggc Gly ccc Pro agc Ser atg Met	Trp acc Thr 315 cac His aag Lys tgg Trp cgc Arg ccc Pro 395 aac Asn	Asp 300 ggg Gly aag Lys ctg Leu ccc Pro tac Tyr 380 gaa Glu	gtg Val ttc Phe acc Thr acc Thr 365 ccc Pro	gtg Val agc Ser ctg Leu 350 ctc Leu gac Asp	ccc Pro gtg Val 335 aag Lys gtg Val cac His ct Val	atc Ile 320 tcc Ser ttc Phe acc Thr atg Met cag Gln 400 gcc Ala	960 1008 1056 1104 1152 1200

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<213> Artificial Sequence

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<213> Artificial Sequence

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<223> EGFP-CDK2 fusion

<221> CDS

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Val																
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gag	aac	σaσ	aac	gat	acc	acc	tac	gac	aaq	cta	acc	ctq	aaq	ttc	atc	144
Glu																
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Cys '																
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Leu '					_	_		-	_							
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Gln :																
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Val :																
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Ile .																
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Pro	Val	Leu	Leu	Pro	Asp	Asn	His	${ t Tyr}$	Leu	Ser	Thr	Gln	Ser	Ala	Leu	
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Ser	Lys	Asp	Pro	Asn	Glu	Lys	Arg	Asp	His	Met		Leu	Leu	Glu	Phe	
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Gly	GLu	GLY		туr	GТĀ	vaı	vaı		туѕ	ΑΙα	Arg	ASN		ьeu	THE	
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<211> 544

<212> PRT

<213> Artificial Sequence

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Asp Tyr Lys Pro Ser Phe Pro Lys Trp Ala Arg Gln Asp Phe Ser Lys
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                485
Val Val Pro Pro Leu Asp Glu Asp Gly Arg Ser Leu Leu Ser Gln Met
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                                                    510
Leu His Tyr Asp Pro Asn Lys Arg Ile Ser Ala Lys Ala Ala Leu Ala
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                                                                       96
gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                25
gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
                                                                      144
Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                            40
                                                 45
tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
                                                                      192
Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
                                                                      240
ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
                                        75
                    70
                                                                      288
cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
                                    90
                85
cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
                                                                      336
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
                                105
            100
                                                                      384
gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
                                                 125
        115
                            120
                                                                      432
atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
                        135
                                             140
aac tac aac agc cac aac gtc tat atc atg gcc gac aag cag aag aac
                                                                      480
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155

Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn

145

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ggc atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc
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Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
                                   170
               165
gtg cag ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc
                                                                      576
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
                                185
ccc gtg ctg ctc ccc gac aac cac tac ctg agc acc cag tcc gcc ctg
                                                                      624
Pro Val Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
                            200
                                                                      672
age aaa gae eec aac gag aag ege gat eac atg gte etg etg gag tte
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
                                            220
                        215
gtg acc gcc gcc ggg atc act ctc ggc atg gac gag ctg tac aag tcc
                                                                      720
Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
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                    230
gga ctc aga tct cga gag atg ctg tcc cgt ggg tgg ttt cac cga gac
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Gly Leu Arg Ser Arg Glu Met Leu Ser Arg Gly Trp Phe His Arg Asp
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                245
ctc agt ggg ctg gat gca gag acc ctg ctc aag ggc cga ggt gtc cac
                                                                      816
Leu Ser Gly Leu Asp Ala Glu Thr Leu Leu Lys Gly Arg Gly Val His
                                265
ggt agc ttc ctg gct cgg ccc agt cgc aag aac cag ggt gac ttc tcg
                                                                      864
Gly Ser Phe Leu Ala Arg Pro Ser Arg Lys Asn Gln Gly Asp Phe Ser
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ctc tcc gtc agg gtg ggg gat cag gtg acc cat att cgg atc cag aac
                                                                      912
Leu Ser Val Arg Val Gly Asp Gln Val Thr His Ile Arg Ile Gln Asn
                        295
tca ggg gat ttc tat gac ctg tat gga ggg gag aag ttt gcg act ctg
                                                                      960
Ser Gly Asp Phe Tyr Asp Leu Tyr Gly Glu Lys Phe Ala Thr Leu
                                        315
aca gag ctg gtg gag tac tac act cag cag cag ggt gtc ctg cag gac
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Thr Glu Leu Val Glu Tyr Tyr Thr Gln Gln Gln Gly Val Leu Gln Asp
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                                    330
cgc gac ggc acc atc atc cac ctc aag tac ccg ctg aac tgc tcc gat
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Arg Asp Gly Thr Ile Ile His Leu Lys Tyr Pro Leu Asn Cys Ser Asp
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ccc act agt gag agg tgg tac cat ggc cac atg tct ggc ggg cag gca
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Pro Thr Ser Glu Arg Trp Tyr His Gly His Met Ser Gly Gly Gln Ala
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                                                365
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Glu Thr Leu Leu Gln Ala Lys Gly Glu Pro Trp Thr Phe Leu Val Arg
                        375
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Glu Ser Leu Ser Gln Pro Gly Asp Phe Val Leu Ser Val Leu Ser Asp
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                    390
cag ccc aag gct ggc cca ggc tcc ccg ctc agg gtc acc cac atc aag
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Gln Pro Lys Ala Gly Pro Gly Ser Pro Leu Arg Val Thr His Ile Lys
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Val Met Cys Glu Gly Gly Arg Tyr Thr Val Gly Gly Leu Glu Thr Phe
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gac agc ctc acg gac ctg gta gag cat ttc aag aag acg ggg att gag
Asp Ser Leu Thr Asp Leu Val Glu His Phe Lys Lys Thr Gly Ile Glu
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Glu Ala Ser Gly Ala Phe Val Tyr Leu Arg Gln Pro Tyr Tyr Ala Thr
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                         455
                                                                      1440
agg gtg aat gcg gct gac att gag aac cga gtg ttg gaa ctg aac aag
Arg Val Asn Ala Ala Asp Ile Glu Asn Arg Val Leu Glu Leu Asn Lys
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aag cag gag too gag gat aca goo aag got ggo tto tgg gag gag ttt
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Lys Gln Glu Ser Glu Asp Thr Ala Lys Ala Gly Phe Trp Glu Glu Phe
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                 485
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gag Glu	agt Ser	ttg Leu	cag Gln 500	aag Lys	cag Gln	gag Glu	gtg Val	aag Lys 505	aac Asn	ttg Leu	cac His	cag Gln	cgt Arg 510	ctg Leu	gaa Glu	1536
ggg Gly	cag Gln	Arg	сса	gag Glu	aac Asn	aag Lys	ggc Gly 520	aag	aac Asn	cgc Arg	tac Tyr	aag Lys 525	aac Asn	att Ile	ctc Leu	1584
ccc	ttt Phe	515 gac Asp	cac His	agc Ser	cga Arg	gtg Val	atc	ctg Leu	cag Gln	gga Gly	cgg Arg	gac	agt Ser	aac Asn	atc Ile	1632
	530					535					540					1680
Pro	ggg Gly	Ser	gac Asp	Tyr	atc Ile 550	Asn	Ala	Asn	Tyr	Ile 555	Lys	Asn	Gln	Leu	Leu 560	1000
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				565						~~~	+ ~~	~~~	~~~		200	1776
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cat	atc	atc		atσ	acc	acc	cqa	qaq	qtq	gag	aaa	ggc	cgg	aac	aaa	1824
Arg	Val	Ile 595	Val	Met	Thr	Thr	Arg 600	Glu	Val	Glu	Lys	Gly 605	Arg	Asn	Lys	1070
tgc Cys	gtc Val 610	cca Pro	tac Tyr	tgg Trp	ccc Pro	gag Glu 615	gtg Val	ggc Gly	atg Met	cag Gln	cgt Arg 620	gct Ala	Tyr	ggg	Pro	1872
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Tyr 625	Ser	Val	Thr	Asn	Cys 630	Gly	Glu	His	Asp	Thr 635	Thr	Glu	Tyr	Lys	Leu 640	
cgt	acc	tta	cag	gtc	tcc	ccg	ctg	gac	aat	gga	gac	ctg	att	cgg	gag	1968
Arg	Thr	Leu	Gln	Val 645	Ser	Pro	Leu	Asp	Asn 650	Gly	Asp	Leu	Ile	Arg 655	GLu	0016
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			660		Tyr			665					670			2064
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Glu	Ser 690	Leu	Pro	His	Ala	Gly 695	Pro	Ile	Ile	Val	His 700	Cys	Ser	Ala	GTÀ	
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705					Thr 710					715					720	2222
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				725	Leu				730					735		2256
cag Gln	atg Met	gtg Val	cgg Arg 740	gcg Ala	cag Gln	Arg	Ser	Gly 745	Met	Val	Gln	Thr	Glu 750	Ala	Gln	2200
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Tyr	Lys	Phe 755	Ile	Tyr	Val	Ala	Ile 760	Ala	Gln	Phe	Ile	Glu 765	Thr	Thr	Lys	2252
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_	770				Leu	775					780					2400
ggg	aac	ato	acc	tat	ccc	cca	gcc	atg	aag	aat	gcc	cat	ycc	aag	ycc nia	2400
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785	. ~~~		+	+00			220	nan	gat			gad	aac	cto	cac	2448
Ser	Arg	Thr	Ser	Ser 805	Lys	His	Lys	Glu	Asp 810	Val	. Tyr	Glu	Asn	815	His 5	
act	aaq	aac	: aac	aαα	r dad	gaq	aaa	gtg	aag	aag	cag	g cgg	tca	gca	gac	2496
Thr	Lys	Asr	Lys 820	Arg	g Ğlü	. Ğlü	Lys	Val 825	Lys	Lys	Glr	a Arg	830	Ala	Asp	

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Glu Ser Leu Ser Gln Pro Gly Asp Phe Val Leu Ser Val Leu Ser Asp
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                                      395
Gln Pro Lys Ala Gly Pro Gly Ser Pro Leu Arg Val Thr His Ile Lys
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                                  410
Val Met Cys Glu Gly Gly Arg Tyr Thr Val Gly Gly Leu Glu Thr Phe
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Asp Ser Leu Thr Asp Leu Val Glu His Phe Lys Lys Thr Gly Ile Glu
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Glu Ala Ser Gly Ala Phe Val Tyr Leu Arg Gln Pro Tyr Tyr Ala Thr
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Pro Phe Asp His Ser Arg Val Ile Leu Gln Gly Arg Asp Ser Asn Ile
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Pro Gly Ser Asp Tyr Ile Asn Ala Asn Tyr Ile Lys Asn Gln Leu Leu
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Gly Pro Asp Glu Asn Ala Lys Thr Tyr Ile Ala Ser Gln Gly Cys Leu
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Glu Ala Thr Val Asn Asp Phe Trp Gln Met Ala Trp Gln Glu Asn Ser
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Arg Val Ile Val Met Thr Thr Arg Glu Val Glu Lys Gly Arg Asn Lys
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Cys Val Pro Tyr Trp Pro Glu Val Gly Met Gln Arg Ala Tyr Gly Pro
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Tyr Ser Val Thr Asn Cys Gly Glu His Asp Thr Thr Glu Tyr Lys Leu
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        630
Arg Thr Leu Gln Val Ser Pro Leu Asp Asn Gly Asp Leu Ile Arg Glu
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                                   650
Ile Trp His Tyr Gln Tyr Leu Ser Trp Pro Asp His Gly Val Pro Ser
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Glu Pro Gly Gly Val Leu Ser Phe Leu Asp Gln Ile Asn Gln Arg Gln
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Glu Ser Leu Pro His Ala Gly Pro Ile Ile Val His Cys Ser Ala Gly
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                                        700
Ile Gly Arg Thr Gly Thr Ile Ile Val Ile Asp Met Leu Met Glu Asn
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                                      715
Ile Ser Thr Lys Gly Leu Asp Cys Asp Ile Asp Ile Gln Lys Thr Ile
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Gln Met Val Arg Ala Gln Arg Ser Gly Met Val Gln Thr Glu Ala Gln
           740
                               745
Tyr Lys Phe Ile Tyr Val Ala Ile Ala Gln Phe Ile Glu Thr Thr Lys
                          760
Lys Lys Leu Glu Val Leu Gln Ser Gln Lys Gly Gln Glu Ser Glu Tyr
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                                           780
Gly Asn Ile Thr Tyr Pro Pro Ala Met Lys Asn Ala His Ala Lys Ala
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                                       795
Ser Arg Thr Ser Ser Lys His Lys Glu Asp Val Tyr Glu Asn Leu His
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gag acc ctg ctc aag ggc cga ggt gtc cac ggt agc ttc ctg gct cgg
Glu Thr Leu Leu Lys Gly Arg Gly Val His Gly Ser Phe Leu Ala Arg
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            20
ccc agt cgc aag aac cag ggt gac ttc tcg ctc tcc gtc agg gtg ggg
                                                                      144
Pro Ser Arg Lys Asn Gln Gly Asp Phe Ser Leu Ser Val Arg Val Gly
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                                                 45
gat cag gtg acc cat att cgg atc cag aac tca ggg gat ttc tat gac
                                                                      192
Asp Gln Val Thr His Ile Arg Ile Gln Asn Ser Gly Asp Phe Tyr Asp
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ctg tat gga ggg gag aag ttt gcg act ctg aca gag ctg gtg gag tac
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Leu Tyr Gly Gly Glu Lys Phe Ala Thr Leu Thr Glu Leu Val Glu Tyr
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                                        75
                    70
tac act cag cag cag ggt gtc ctg cag gac cgc gac ggc acc atc atc
                                                                      288
Tyr Thr Gln Gln Gly Val Leu Gln Asp Arg Asp Gly Thr Ile Ile
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                                                                      336
cac ctc aag tac ccg ctg aac tgc tcc gat ccc act agt gag agg tgg
His Leu Lys Tyr Pro Leu Asn Cys Ser Asp Pro Thr Ser Glu Arg Trp
                                                                      384
tac cat qqc cac atg tct qqc qqq cag gca gag acg ctg ctg cag gcc
Tyr His Gly His Met Ser Gly Gly Gln Ala Glu Thr Leu Leu Gln Ala
                            120
                                                125
                                                                      432
aag ggc gag ccc tgg acg ttt ctt gtg cgt gag agc ctc agc cag cct
Lys Gly Glu Pro Trp Thr Phe Leu Val Arg Glu Ser Leu Ser Gln Pro
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                                             140
                                                                      480
gga gac ttc gtg ctt tct gtg ctc agt gac cag ccc aag gct ggc cca
Gly Asp Phe Val Leu Ser Val Leu Ser Asp Gln Pro Lys Ala Gly Pro
                   150
                                        155
                                                                      528
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Gly Ser Pro Leu Arg Val Thr His Ile Lys Val Met Cys Glu Gly Gly
                                    170
                165
cgc tac aca gtg ggt ggt ttg gag acc ttc gac agc ctc acg gac ctg
                                                                      576
Arg Tyr Thr Val Gly Gly Leu Glu Thr Phe Asp Ser Leu Thr Asp Leu
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                                                     190
            180
                                                                       624
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Val Glu His Phe Lys Lys Thr Gly Ile Glu Glu Ala Ser Gly Ala Phe

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att	σασ	aac	cga	gtg	ttg	gaa	ctg	aac	aag	aag	cag	gag	tcc	gag	gat	720
Ile 225	Ğlū	Asn	Arg	Val	Leu 230	Glu	Leu	Asn	Lys	Lys 235	Gln	Glu	Ser	Glu	Asp 240	
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Thr	Ala	Lys	Ala	Gly 245	Phe	Trp	Glu	Glu	Phe 250	Glu	Ser	Leu	Gln	Lys 255	Gln	
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			Asn 260					265					270			0.64
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_	_	275	Asn				280					285				012
gtg	atc	ctg	cag	gga	cgg	gac	agt	aac	atc	CCC	ggg	CCC	gac	Tur	Tle	912
	290		Gln			295					300					960
aat	gcc	aac	tac	atc	aag	aac	cag	ctg	cta	ggc	CCT	gat	Glu	Aac	gC. Ala	960
	Ala	Asn	Tyr	Ile		Asn	GIn	ьеu	Leu	315	Pro	ASP	GLU	ASII	320	
305		+	atc	~~~	310	cad	aac	tat	cta		acc	acq	atc	aat		1008
Lys	Thr	Tyr	Ile	Ala 325	Ser	Gln	Gly	Cys	Leu 330	Glu	Ala	Thr	Val	Asn 335	Asp	
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Phe	Trp	Gln	Met 340	Ālā	Trp	Gln	Ğlü	Asn 345	Ser	Arg	Val	Ile	Val 350	Met	Thr	
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Thr	Arg	Glu 355	Val	Glu	Lys	Gly	Arg 360	Asn	Lys	Cys	Val	Pro 365	Tyr	Trp	Pro	
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Gly	Glu	His	Åsp	Thr		Glu	Tyr	Lys	Leu	Arg	Thr	Leu	Gln	Val	Ser	
385					390					395				~~~	400	1248
ccg	ctg	gac	aat	gga	gac	ctg	att	cgg	gag	atc	Trn	Uie	Tur	Gln	Tur	1240
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Gly	Pro	lle	lle	Val	His	Cys 455	Ser	Ala	Gly	Ile	Gly 460	Arg	Thr	Gly	Thr	
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Ile	Ile	Val	. Ile	Asp	Met	Leu	Met	Glu	Asn	Ile	Ser	Thr	Lys	Gly	Leu	
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cgc	: tcg	g ggd	atg	gtg	cag	acg	gag	gcg	cag	tac	aac	TTC	atc Ti~	Tac	gtg	1536
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gcc	ato	gc gc	cag	tto	: att	. gaa	acc	act	aac	, aac	aaq	, ctg	gag	y y t c	ctg	1584
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cag	j to	g ca	gaag	ggg	cag	gaç	, tcc	gag	, tac	ggg	j aad	ato	acc	tat	ccc	1632
Glr	s Sei	r Gl	n Lys	Gl3	/ Glr	ı Glu	ı Sei	: Glu	і Туі	c GIZ	/ ASI	1 TTE	rnr	. тут	r Pro	

	F 2 0					535					540					
cca	530 acc	atα	aaσ	aat	acc	cat	gcc	aag	gcc	tcc	cgc	acc	tcg	tcc	aaa	1680
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His	гуs	GIU	Asp	565	тЪг	GIU	ASII	пеа	570				-1-	575		
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tcc	ctc	aag	agg	aag	cga	att	Ctg	cag Gln	Ser	Thr	Val	Pro	Ara	Ala	Arg	202-
ser	ьeu	ьуs 595	Arg	гуз	ALG	116	600	01	001			605				
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ggg	gtg	gtg	CCC	atc	Ctg	Val	Glu	ctg Leu	Asp	Glv	Asp	Val	Asn	Gly	His	
625	vaı	vai	FIO	116	630	VUI	014	100	F	635	•			_	640	
220	ttc	agc	gtĝ	tcc	ggc	gag	ggc	gag	ggc	gat	gcc	acc	tac	ggc	aag	1968
Lys	Phe	Ser	Val	Ser	Gly	Glu	Gly	Ğlu	Gly	Asp	Ala	Thr	Tyr	G1y 655	Lys	
				645		h ~ ~	200	acc	650	220	cta	CCC	ata		taa	2016
ctg	acc Thr	ctg	aag	Phe	Tle	Cvs	Thr	Thr	Glv	Lvs	Leu	Pro	Val	Pro	Trp	
			660					665					6/0			
ccc	acc	ctc	gtg	acc	acc	ctg	acc	tac	ggc	gtg	cag	tgc	ttc	agc	cgc	2064
Pro	Thr			Thr	Thr	Leu		Tyr	Gly	Val	GIn	685	Pne	Ser	ALG	
		675	<i>a</i> 2 <i>a</i>	2 ± 4	220	cad	680 cac	gac	t.t.c	t.t.c	αασ	-	qcc	atg	CCC	2112
Tur	Pro	Asp	His	Met	Lvs	Gln	His	Asp	Phe	Phe	Lys	Ser	Āla	Met	Pro	
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Tvr	Lvs	Thr	Arq	Ala	Glu	Val	Lys	Phe	Ğlu	бĺу	Ásp	Thr	Leu	. vaı	ASI	
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cgc	ato	gag	cto	aag	ggc	ato	gac	ttc	aag	gag	gac	ggc	aac Asn	Tle	ctg Leu	2230
Arç	Ile	Glu	1 Leu 740		s Gry	, 116	ASP	745	гуз	GIU	, Wat	, 613	750)	e Leu	
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		755	5				760)				765)			2352
gco	gac	aaq	g cag	g aaq	g aac	ggo	ato,	aag Tus	g t g	aac Asr) Phe	LVS	i Ile	Arc	c cac g His	2002
	770)				775	5				780)				
aad	- at/	r mad	g gad	gg	c ago	gt	g cag	g ctc	gcc	gad	cac	c tac	cag	g ca	g aac	2400
Ası	ı Ile	e Ğli	ı Ası	9 G1	y Se:	r Val	L Gl	ı Lev	ı Alá	a Asp	o HI:	з Туі	r Glı	n Gli	n Asn 800	
78	5				79	0	_ ~+	* a+a	· a+a	795		c aad	ca.	c ta		2448
ac	C CC	c at	c gg	c ga	c 999	v Pr	o Val	l Lei	ı Let	ı Pro	o Ası	p Ası	n Hi	s Ty	c ctg r Leu	
				80	5				810)				ΩT	3	
ag	c ac	с са	g tc	c gc	c ct	g ag	c aaa	a gad	c cc	c aa	c ga	g aa	g cg	c ga	t cac	2496
Se	r Th	r Gl			a Le	u Se	r Ly	s Ası	p Pro	o Asi	n GI	и ьу	s Ar	g AS O	p His	
	~ ~+	c c+	82 a ct	a as	a tt	c at	a ac	82! c ac		c aa	g at	c ac			c atg	2544
at Me	g gc t.Va	l Le	y UL u Le	y ya u Gl	u Ph	e Va	l Th	r Ala	a Al	a Gl	y Il	e Th	r Le	u Ğĺ	y Met	
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Leu Ser Trp Pro Asp His Gly Val Pro Ser Glu Pro Gly Gly Val Leu
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                  425
          420
Ser Phe Leu Asp Gln Ile Asn Gln Arg Gln Glu Ser Leu Pro His Ala
                                445
              440
Gly Pro Ile Ile Val His Cys Ser Ala Gly Ile Gly Arg Thr Gly Thr
                          460
  450 455
Ile Ile Val Ile Asp Met Leu Met Glu Asn Ile Ser Thr Lys Gly Leu
        470
                                   475
Asp Cys Asp Ile Asp Ile Gln Lys Thr Ile Gln Met Val Arg Ala Gln
                                490
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Arg Ser Gly Met Val Gln Thr Glu Ala Gln Tyr Lys Phe Ile Tyr Val
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                  505
Ala Ile Ala Gln Phe Ile Glu Thr Thr Lys Lys Lys Leu Glu Val Leu
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Gln Ser Gln Lys Gly Gln Glu Ser Glu Tyr Gly Asn Ile Thr Tyr Pro
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Pro Ala Met Lys Asn Ala His Ala Lys Ala Ser Arg Thr Ser Ser Lys
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His Lys Glu Asp Val Tyr Glu Asn Leu His Thr Lys Asn Lys Arg Glu
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Glu Lys Val Lys Lys Gln Arg Ser Ala Asp Lys Glu Lys Ser Lys Gly
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Ser Leu Lys Arg Lys Arg Ile Leu Gln Ser Thr Val Pro Arg Ala Arg
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                      600
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Asp Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu Phe Thr
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 Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His
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 Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys
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                                             670
                             665
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 Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro
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 Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn
                          715
                710
 Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn
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               725
 Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu
           740 745
 Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met
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                                            765
 Ala Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His
           775
                                       780
 Asn Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn
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                   790
 Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu
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 Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His
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gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                       96
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                 25
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 gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
                                                                      144
 Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                             40
 tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
                                                                      192
 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
                         55
 ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
                                                                      240
 Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
                                         75
                                                                       288
 cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
 Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
                                     90
                 85
 cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
                                                                       336
 Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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                                 105
             100
 gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc
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 Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
                             120
 atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac
                                                                       432
 Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
                          135
                                              140
  aac tac aac agc cac aac gtc tat atc atg gcc gac aag cag aac
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                      150
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  Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
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  gtg cag ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc
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  Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
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  ccc gtg ctg ccc gac aac cac tac ctg agc acc cag tcc gcc ctg
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  Pro Val Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
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  agc aaa gac ccc aac gag aag cgc gat cac atg gtc ctg ctg gag ttc
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Ser	Lys	Asp	Pro	Ası	n Gl	u L	ys :	Arg	Asp	His	Μe	et \	Val	Leu	Leu	G.	lu l	Ph€	=	
	210					- 7	יו ה					-	220							720
gtg	acc	gcc	gcc	gg	g at	c a	ct	ctc	ggc	atg	ga	ac g	9a9 2111	T.e.ii	Tyr	T	vs :	Sei	c	
	Thr	Ala	Ala	GI:	y 11 23		nr	ьeu	Ğly	Mec	2.	35	0±u	2.00	- , -			240	0	
225	ata	202	+ c+	ca	= ac	٠ +	aa	act	tcg	aat	t c	cq i	acc	atg	gag	C	gg	cc	С	768
gga Gl v	Len	Ara	Ser	. Ar	a Al	La G	iln	Ala	Ser	Asr	S	er '	Thr	Met	Glu	ı A	rg	Pro)	
				24	5					250)						J J			016
cca	aaa	ctg	cgg	g cc	g gg	gc g	gcg	ggc	ggg	ccc	: t	gg	gag	atg	cgg	g	ag	cg	g	816
Pro	Gly	Leu	Arg	, Pr	o Gl	Ly P	Ala	Gly	GLY	Pro) T	rp	Glu	Met	MIG	,	Iu	Ar	g	
			260	1					265						2/	,				864
ctg	ggc	acc	gg	gg	c ti	tc q	ggg	aac	gtc	tgt	; C	cg ou	Tur	Gln	His	. C	yy ra	Gl	u	
Leu	Gly			y Gl	y Pi	ne (žΙΫ	280	Val	Суз	יתי	eu	TYL	285	11.2.		- 9			
		275		- at	a (1)	ca :	att	aag	tct	tat	. c	qс	cta	gag	cta	a a	.gt	ac	С	912
CTT	gat	Tou	Tu	a ac e Tl	a y	la i	Tle	Lvs	Ser	Cys	s A	rg	Leu	Glu	Le	ı S	er	Th	r	
	200						295						300							
aaa			ga.	a co	a t	gg '	tgc	cat	gaa	ato	c	ag	att	atg	aa	g a	ag	tt	g	960
Lys	Asn	Arc	, Ğl	u Ar	g T	rp (Cys	His	Glu	11	е С	TII	Ile	Met	Lу	s I	ıys		· •	
205					- 3	10					J	LJ						-		1008
aac	cat	gco	aa	t gt	t g	ta -	aag	gcc	tgt	ga	t g	tt 'al	Dro	Glu	ga	a (.eu	As	in	1000
Asn	His	Ala	a As			al	Lys	Ala	Cys	33	o V	ат	FIO	GIU	. OI	3	335		•••	
				32	25 .+ ~	+ ~	act.	ctt	cta			t.α	gaa	tac	: ta			gg	ga .	1056
att	ttg	ati	ca Sui	c De	it y en V	ra I	Pro	Leu	Leu	Al	a M	iet	Glu	Tyr	. Cy	s S	Ser	Gl	- У	
			3.4	Λ					345)					33	U				
aaa	gat	cte		a a:	ag c	tq	ctc	aac	aaa	cc	a c	jaa	aat	tgt	: tg	t (gga	ct	t	1104
Glv	Asr	Le	u Ar	g L	ys L	eū	Leu	Asn	Lys	Pr	0 (Glu	Asn	Суг	ь Су	s (Gly	Le	eu	
		35	5					360)					300	,					1152
aaa	gaa	ag	c ca	ıg a	ta c	tt	tct	tta -	cta	ag	t	gat	ata	ggg	, 50	T 1	399 61 v	T?	او	1132
Lys	s Gli	ı Se	r Gl	n I	le I	Leu	Ser	Let	Lei	ı Se	r	Asp	380	, GT	y 50		O L y			
	370)					375	2++	ata	a ca	+ 6	cga			a aa	ıa	cct	ga	aa	1200
cga	a ta	ב דב	g ca	at g	aa c lu I	len	Lvs	Tle	e Ile	e Hi	s i	Arq	Asp	Lei	ı Ly	rs	Pro	G.	lu	
200	=				7	390						393							00	
	~ ~+	a ort	t ci	t c	aq (gat	gtt	ggt	gga	a aa	ag i	ata	ata	a ca	t aa	a	ata	a·	tt	1248
Ası	n Il	e Va	1 L	eu G	1n 2	Asp	Val	Gly	, Ğĺ	λг2	7S	Ile	Ile	e Hi	s L	/S	110		те	
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ga	t ct	g gg	a ta	at g	CC 3	aaa	gat	gti	t ga	t ca	aa In	gga clv	ayı Ger	r T.e	9 C	JS JS	Thr	S	er	
As	р Le	u Gl			la .	Lys	Asp	va.	1 As 42	p G. 5	LII	Сту	501		43	30				
	L ~-	~ ~	4.	20	ta i	cad	tat	ct	g gc	C C	ca	qaq	cto	c tt	t ga	ag	aat	a	ag	1344
L L Dh	t git o Va	9 99 1 G1	ya a v T	hr I	eu	Gln	Tyr	Le	u Al	a P	ro	Glu	Lei	u Ph	e G	Lu	Asn	L	ys	
		17	25					44	0					44)					1202
cc	t ta		~	cc a	ct	gtt	gat	ta:	t tg	g a	gc	ttt	gg	g ac	c a	tg -+	gta	ı t	tt bo	1392
Pr	о Ту	r Th	nr A	la T	hr	Val	Ası	э Ту	r Tr	p S	er	Phe	46	y 111	I M	eı	vaı	LF	116	
	4 0	Λ					45	ว					40	U						1440
ga	a to	rt at	tt g	ct	gga	Tat	ago	g CC	t tt	e T	eu	His	s Hi	s Le	eu G	ln	Pro	o E	he	
						47 N	1					4/3)					•		
46		ים כ	at o	ag a	aασ	2++	22	g aa	g aa	ıg g	at	CC	a aa	g to	jt a	ta	ttt	t g	gca	1488
ጥኮ	r Ti	no H	is G	ilu !	Lуs	Ile	. Ly	s Ly	s Ly	s A	sp	Pro	э Ьу	s Cy	/s I	le		-	Ala	
					4 O E					- 4	90							_		1536
to	gt ga	aa g	ag a	tg	tca	gga	ga	a gt	t co	gg t	tt	ag	t ag	C C	at t	ta	Dr.	0 (Jaa 21 n	1330
C	s G.	Lu G	lu N	1et	Ser	Gl y	, Gl	u Va	T A	rg F	ne	Se	r se	er n.		10	ET.		31.11	
				500	L L	~~1		4	a gi)5 ta (122	CC	c at	a a			ta	g (cta	1584
C	ca a	at a	gc (CEE	cuc	agu	. LL	a at	Le Va	al G	Hu	Pr	o Me	et G	lu F	Asn	Tr	Ď:	Leu	
		5	15					52	20					٠.	23					
~	ag +			tta	aat	tac	g qa		rt c	ag d	cag	ag	a gg	ga g	ga d	cct	gt	t	gac	1632
G	ay t ln L	eu M	let :	Leu	Asn	Tr	Ās	p P	ro G	ln (Gln	Ar	g G	ry G	ly 1	Pro	Va	1 .	Asp	
		20					5.3	15					٦.	4 U						1680
С	tt a	ct t	tg	aag	cag	CC	a aç	ja t	gt t	tt (gta	ττ	a at	cy g	al (Jac	, a.		9	1000

	m)	T	T	Cln	Dro	Ara	Cvs	Phe	Val	Le	u M	let .	Asp	His	ıı	e I	Leu	
C 4 C					550					33	J					-		1700
	ttg	aag	ata	gta	cac	atc	cta	aat	atg	ac	t t	ct	gca	aag	at T1	.a a	att Tlo	1728
Asn	Leu	Lys	Ile	Val	His	Ile	Leu	Asn	Met 570	Tn	ır 5	er	Ala	гуз	57			
+ a+	+++	ct a	++=	565 cca	cat	gat	gaa	agt	ctt	са	ıt t	ca	cta	cag	to	t (cgt	1776
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Lys	Ser	Lys	Thr	٧al	Tyr	Glu	ı Gly	Pro	PIR	2 A.	la	Ser	Arg	Ser			Ser	
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cta	aaa	gaa	a gac	י נמנ י דעו	. ayu · Se:	r Are	r Le	u Phe	e Gl	n G	1y	Gln	Arg	Ala	Ā	la	Met	
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Let	ı Sei	: Le	Leu د	ı Arç	J TY	r As	n Al	a Ası	n ње	uı	'nr	ьуѕ	мес	. шуз	, r	1311	720	
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aaa	a ago	at	t ca	g ct	t ga	c tt	g ga	g ag	a ta	ic a	igc	Glu	Gli	n Mei	y c t I	hr.	Tyr	2200
Ly	s Se:	r Il	e Gl: 74		u As	р ге	u Gı	u Ar 74	9 1 y 5	' L L	JCI	010	. 011	75	0		•	
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aa	g gc	c at	c ca	c ta	t go	a Gl	ıgıgı 11 Va	ıı gg	v Va	al :	Ile	Gly	Ty:	r Le	u (Ğlu	gat Asp	
	77	Λ				77	15					/ 0 (,					2400
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	Leu 50					55					60					240
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Су	s Ile	e Phe	e Ala	24 ¹	s Glu 5	ı Glı	ı Me	. Se	c G15) A GT	ı va.	I AL	g File	25	5	016
Hi	s Le	ı Pr	o Gli 26	n Pro	o Asr	ı Sei	. Le	Cy: 26!	s Se: 5	г ье	u 11	e va	27	0	c atg o Met	816
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Pro	Pro	Val 755	Ala	Thr	atg Met	Val	Ser 760	Lys	Gly	Glu	Glu	Leu 765	Phe	Thr	Gly	2304
Val	Val 770	Pro	Ile	Leu	gtc Val	Glu 775	Leu	Asp	Gly	Asp	Val 780	Asn	Gly	His	Lys	2352
Phe 785	Ser	Val	Ser	Gly	gag Glu 790	Gly	Glu	Gly	Asp	Ala 795	Thr	Tyr	Gly	Lys	Leu 800	2400
Thr	Leu	Lys	Phe	Ile 805	tgc Cys	Thr	Thr	Gly	Lys 810	Leu	Pro	Val	Pro	Trp 815	Pro	2446
Thr	Leu	Val	Thr 820	Thr	ctg Leu	Thr	Tyr	Gly 825	Val	Gln	Cys	Phe	Ser 830	Arg	Tyr	2544
Pro	Asp	His 835	Met	Lys	cag Gln	His	Asp 840	Phe	Phe	Lys	Ser	Ala 845	Met	Pro	Glu	2592
Gly	Tyr 850	Val	Gln	Glu	cgc Arg	Thr 855	Ile	Phe	Phe	Lys	Asp 860	Asp	Gly	Asn	Tyr	2640
Lys 865	Thr	Arg	Ala	Glu	gtg Val 870	Lys	Phe	Glu	Gly	Asp 875	Thr	Leu	Val	Asn	Arg 880 ggg	2688
Ile	Glu	Leu	Lys	Gly 885	Ile	Asp	Phe	Lys	Glu 890	Asp	Gly	Asn	Ile	Leu 895	Gly	2736
His	Lys	Leu	Glu 900	Tyr	Asn	Tyr	Asn	Ser 905	His	Asn	Val	Tyr	11e 910	Met	Ala	2784
Asp	Lys	Gln 915	Lys	Asn	Gly	Ile	Lys 920	Val	Asn	Phe	Lys	11e 925	Arg	His	Asn	2832
Ile	Glu 930	Asp	Gly	Ser	Val	Gln 935	Leu	Ala	Asp	His	Tyr 940	Gln	Gln	Asn	Thr	2880
Pro 945	Ile	Gly	Asp	Gly	Pro 950	Val	Leu	Leu	Pro	Asp 955	Asn	His	Tyr	Leu	Ser 960 atg	2928
Thr	Gln	Ser	Ala	Leu 965	Ser	Lys	Asp	Pro	Asn 970	Glu	Lys	Arg	Asp	975	Met	2976
Val	. Leu	Leu	980 980	Phe	Val	Thr	Ala	Ala 985	Gly	Ile	Thr	Leu	990	Met	Asp	

gag ctg tac aag taa Glu Leu Tyr Lys 995

<210> 123

<211> 996

<212> PRT

<213> Artificial Sequence

<220>

<223> IkappaB-kinase-EGFP fusion

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350
                              345
           340
Glu Leu Leu Ser Glu Thr Gly Ile Ser Leu Asp Pro Arg Lys Pro Ala
                                             365
                         360
      355
Ser Gln Cys Val Leu Asp Gly Val Arg Gly Cys Asp Ser Tyr Met Val
                     375
                                         380
Tyr Leu Phe Asp Lys Ser Lys Thr Val Tyr Glu Gly Pro Phe Ala Ser
                                     395
         390
Arg Ser Leu Ser Asp Cys Val Asn Tyr Ile Val Gln Asp Ser Lys Ile
                                 410
               405
Gln Leu Pro Ile Ile Gln Leu Arg Lys Val Trp Ala Glu Ala Val His
                                       430
                             425
           420
Tyr Val Ser Gly Leu Lys Glu Asp Tyr Ser Arg Leu Phe Gln Gly Gln
                                            445
                          440
       435
Arg Ala Ala Met Leu Ser Leu Leu Arg Tyr Asn Ala Asn Leu Thr Lys
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Met Lys Asn Thr Leu Ile Ser Ala Ser Gln Gln Leu Lys Ala Lys Leu
                                     475
                 470
Glu Phe Phe His Lys Ser Ile Gln Leu Asp Leu Glu Arg Tyr Ser Glu
                        490
               485
Gln Met Thr Tyr Gly Ile Ser Ser Glu Lys Met Leu Lys Ala Trp Lys
                             505
           500
Glu Met Glu Glu Lys Ala Ile His Tyr Ala Glu Val Gly Val Ile Gly
                                  525
                          520
       515
Tyr Leu Glu Asp Gln Ile Met Ser Leu His Ala Glu Ile Met Gly Leu
                                         540
             535
Gln Lys Ser Pro Tyr Gly Arg Arg Gln Gly Asp Leu Met Glu Ser Leu
                                      555
       550
Glu Gln Arg Ala Ile Asp Leu Tyr Lys Gln Leu Lys His Arg Pro Ser
                                  570
Asp His Ser Tyr Ser Asp Ser Thr Glu Met Val Lys Ile Ile Val His
                              585
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Thr Val Gln Ser Gln Asp Arg Val Leu Lys Glu Leu Phe Gly His Leu
                          600
Ser Lys Leu Leu Gly Cys Lys Gln Lys Ile Ile Asp Leu Leu Pro Lys
                                          620
                      615
Val Glu Val Ala Leu Ser Asn Ile Lys Glu Ala Asp Asn Thr Val Met
                                      635
                   630
Phe Met Gln Gly Lys Arg Gln Lys Glu Ile Trp His Leu Leu Lys Ile
                                  650
                645
Ala Cys Thr Gln Ser Ser Ala Arg Ser Leu Val Gly Ser Ser Leu Glu
                              665
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 Gly Ala Val Thr Pro Gln Thr Ser Ala Trp Leu Pro Pro Thr Ser Ala
                                              685
                 680
 Glu His Asp His Ser Leu Ser Cys Val Val Thr Pro Gln Asp Gly Glu
                                          700
                       695
 Thr Ser Ala Gln Met Ile Glu Glu Asn Leu Asn Cys Leu Gly His Leu
                                      715
                    710
 Ser Thr Ile Ile His Glu Ala Asn Glu Glu Gln Gly Asn Ser Met Met
                                   730
                725
 Asn Leu Asp Trp Ser Trp Leu Thr Glu Trp Val Pro Arg Ala Arg Asp
                               745
 Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly
                           760
 Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys
                        775
 Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu
                                    795
                    790
 Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro
                                  810
             805
 Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr
                                                  830
                               825
          820
 Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu
                            840
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Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr
                        855
Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg
                                       875
                    870
Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly
                                  890
               885
His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala
                                                    910
                              905
Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn
                           920
                                                925
Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr
                        935
Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser
                                        955
                    950
Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met
                                    970
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Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp
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Glu Leu Tyr Lys
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                                     10
                 5
 gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                        96
 Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                25
 gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
                                                                       144
 Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                             40
         35
 tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
                                                                       192
 Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
                                             60
                         55
 ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
                                                                       240
 Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
                                         75
                     70
                                                                       288
 cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
  Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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cgc Arg	acc Thr	atc Ile	ttc Phe 100	ttc Phe	aag Lys	gac Asp	gac Asp	ggc Gly 105	aac Asn	tac Tyr	aag Lys	acc Thr	cgc Arg 110	gcc Ala	gag Glu	336
Val	Lys	Phe	gag Glu	Gly	Asp	Thr	Leu 120	Val	Asn	Arg	lle	125	ьеu	гуѕ	GTÀ	384
Ile	Asp 130	ttc Phe	aag Lys	Glu	Asp	Gly 135	Asn	Ile	Leu	Gly	His 140	Lys	Leu	GIU	Tyr	432
Asn 145	Tyr	Asn	agc Ser	His	Asn 150	Val	Tyr	Ile	Met	Ala 155	Asp	Lys	GIn	rys	160	480
Gly	Ile	Lys	gtg Val	Asn 165	Phe	Lys	Ile	Arg	His 170	Asn	IIe	GIu	Asp	175	ser	528
Val	Gln	Leu	gcc Ala 180	Asp	His	Tyr	Gln	Gln 185	Asn	Thr	Pro	TTE	190	ASP	GIY	576
Pro	Val	Leu 195	ctg Leu	Pro	Asp	Asn	His 200	Tyr	Leu	Ser	Thr	G1n 205	Ser	Ата	Leu	624
Ser	Lys 210	Asp	ccc Pro	Asn	Glu	Lys 215	Arg	Asp	His	Met	220	Leu	ьeu	GIU	rne	672
Val	Thr	Ala	gcc Ala	Gly	Ile 230	Thr	Leu	Gly	Met	Asp 235	Glu	Leu	Tyr	гуѕ	240	720
Gly	Leu	Arg	tct Ser	Arg 245	Ala	Gln	Ala	Ser	Met 250	Ser	GLu	Thr	vaı	255	мес	768
Ser	Glu	Thr	gtc Val 260	Ile	Cys	Ser	Ser	Arg 265	Ala	Thr	Val	Met	цеи 270	Tyr	Asp	816
Asp	Gly	Asn 275	aag Lys	Arg	Trp	Leu	Pro 280	Ala	Gly	Thr	Gly	Pro 285	GIn	Ala	Pne	864 912
Ser	Arg 290	Val	Gln	Ile	Tyr	His 295	Asn	Pro	Thr	Ala	300	Ser	Pne	Arg		960
Val 305	Gly	Arg	Lys	Met	Gln 310	Pro	Asp	Gln	Gln	Val 315	Val	TTE	Asn	Cys	gcc Ala 320	1008
Ile	Val	Arg	Gly	Val 325	Lys	Tyr	Asn	Gln	Ala 330	Thr	Pro	Asn	Phe	ніs 335		1056
Trp	Arg	Asp	Ala 340	Arg	Gln	Val	Trp	Gly 345	Leu	Asn	Phe	: СТУ	350	гÀг	gag Glu	1104
Asp	) Ala	Ala	Gln	Phe	Ala	Ala	. Gly 360	Met	Ala	Ser	: Ala	365	GIU	Ala	ttg Leu	1152
Glu	1 Gly	Gly	, Gly	Pro	Pro	Pro 375	Pro	Pro	Ala	Let	1 Pro 380	) Thr )	Trp	) Ser	gtc Val	1200
Pro	Asr	Gl3	/ Pro	Ser	Pro 390	o Glu	Glu	ı Val	. Glu	395 395	eri Peri	і гуз	Arc	J GII	cag Gln 400	1248
Pro	o Gly	/ Pro	Ser	: Glu 405	ı His	: Ile	e Glu	ı Arç	410	y Va. )	L Sei	c Asi	1 Ala	415		1296
Pro	a cct	gct Ala	e Pro	Pro	c gct o Ala	a Gly	g ggt 7 Gly	2 CC6 7 Pro 425	Pro	Pro	o Pro	o Pro	430	Pro	ccc Pro	1200

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cet cet cea ggt cee cee cea cee cea ggt ttg cee cet teg ggg gte
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Pro Pro Pro Gly Pro Pro Pro Pro Gly Leu Pro Pro Ser Gly Val
                            440
                                                                    1392
cca gct gca gcg cac gga gca ggg gga gga cca ccc cct gca ccc cct
Pro Ala Ala His Gly Ala Gly Gly Pro Pro Pro Ala Pro Pro
                        455
                                                                    1440
ctc ccg gca gca cag ggc cct ggt ggt ggg gga gct ggg gcc cca ggc
Leu Pro Ala Ala Gln Gly Pro Gly Gly Gly Gly Ala Gly Ala Pro Gly
                                        475
                    470
                                                                    1488
ctg gcc gca gct att gct gga gcc aaa ctc agg aaa gtc agc aag cag
Leu Ala Ala Ile Ala Gly Ala Lys Leu Arg Lys Val Ser Lys Gln
                                    490
                                                        495
                485
gag gag gcc tca ggg ggg ccc aca gcc ccc aaa gct gag agt ggt cga
                                                                    1536
Glu Glu Ala Ser Gly Gly Pro Thr Ala Pro Lys Ala Glu Ser Gly Arg
                                505
age gga ggt ggg gga ete atg gaa gag atg aae gee atg etg gee egg
                                                                     1584
Ser Gly Gly Gly Leu Met Glu Glu Met Asn Ala Met Leu Ala Arg
                                                525
                            520
        515
                                                                     1632
aga agg aaa gcc acg caa gtt ggg gag aaa acc ccc aag gat gaa tct
Arg Arg Lys Ala Thr Gln Val Gly Glu Lys Thr Pro Lys Asp Glu Ser
                                            540
                        535
gcc aat cag gag gag cca gag gcc aga gtc ccg gcc cag agt gaa tct
                                                                     1680
Ala Asn Gln Glu Glu Pro Glu Ala Arg Val Pro Ala Gln Ser Glu Ser
                                        555
                    550
                                                                     1728
gtg cgg aga ccc tgg gag aag aac agc aca acc ttg cca agg atg aag
Val Arg Arg Pro Trp Glu Lys Asn Ser Thr Thr Leu Pro Arg Met Lys
                                    570
                565
tcg tct tct tcg gtg acc act tcc gag acc caa ccc tgc acg ccc agc
                                                                     1776
Ser Ser Ser Ser Val Thr Thr Ser Glu Thr Gln Pro Cys Thr Pro Ser
                                585
tcc agt gat tac tcg gac cta cag agg gtg aaa cag gag ctt ctg gaa
                                                                     1824
Ser Ser Asp Tyr Ser Asp Leu Gln Arg Val Lys Gln Glu Leu Leu Glu
                                                605
                            600
        595
gag gtg aag aag gaa ttg cag aaa gtg aaa gag gaa atc att gaa gcc
                                                                     1872
Glu Val Lys Lys Glu Leu Gln Lys Val Lys Glu Glu Ile Ile Glu Ala
                        615
                                                                     1908
ttc gtc cag gag ctg agg aag cgg ggt tct ccc tga
Phe Val Gln Glu Leu Arg Lys Arg Gly Ser Pro
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<212> PRT

<213> Artificial Sequence

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<223> EGFP-VASP fusion

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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
              8.5
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
                              105
          100
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
                          120
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
                                        140
                      135
Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
                                    155
                  150
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
                                 170
              165
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
                                               190
                              185
          180
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
                          200
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
                                220
                     215
Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
                         235
                230
Gly Leu Arg Ser Arg Ala Gln Ala Ser Met Ser Glu Thr Val Ile Met
                                  250
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Ser Glu Thr Val Ile Cys Ser Ser Arg Ala Thr Val Met Leu Tyr Asp
                              265
Asp Gly Asn Lys Arg Trp Leu Pro Ala Gly Thr Gly Pro Gln Ala Phe
                          280
Ser Arg Val Gln Ile Tyr His Asn Pro Thr Ala Asn Ser Phe Arg Val
                                         300
                       295
Val Gly Arg Lys Met Gln Pro Asp Gln Gln Val Val Ile Asn Cys Ala
                                      315
                  310
Ile Val Arg Gly Val Lys Tyr Asn Gln Ala Thr Pro Asn Phe His Gln
                                  330
               325
Trp Arg Asp Ala Arg Gln Val Trp Gly Leu Asn Phe Gly Ser Lys Glu
                              345
Asp Ala Ala Gln Phe Ala Ala Gly Met Ala Ser Ala Leu Glu Ala Leu
                                    365
                        360
        355
Glu Gly Gly Pro Pro Pro Pro Pro Ala Leu Pro Thr Trp Ser Val
                                        380
                      375
Pro Asn Gly Pro Ser Pro Glu Glu Val Glu Gln Gln Lys Arg Gln Gln
          390
                                      395
Pro Gly Pro Ser Glu His Ile Glu Arg Arg Val Ser Asn Ala Gly Gly
                                  410
               405
Pro Pro Ala Pro Pro Ala Gly Gly Pro Pro Pro Pro Gly Pro Pro
                               425
                                                 430
            420
 Pro Pro Pro Gly Pro Pro Pro Pro Gly Leu Pro Pro Ser Gly Val
                                             445
                           440
       435
 Pro Ala Ala His Gly Ala Gly Gly Gly Pro Pro Pro Ala Pro Pro
                                          460
                       455
 Leu Pro Ala Ala Gln Gly Pro Gly Gly Gly Gly Ala Gly Ala Pro Gly
                                      475
                   470
 Leu Ala Ala Ala Ile Ala Gly Ala Lys Leu Arg Lys Val Ser Lys Gln
                                  490
 Glu Glu Ala Ser Gly Gly Pro Thr Ala Pro Lys Ala Glu Ser Gly Arg
                              505
            500
 Ser Gly Gly Gly Leu Met Glu Glu Met Asn Ala Met Leu Ala Arg
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 Arg Arg Lys Ala Thr Gln Val Gly Glu Lys Thr Pro Lys Asp Glu Ser
                                          540
               535
 Ala Asn Gln Glu Glu Pro Glu Ala Arg Val Pro Ala Gln Ser Glu Ser
                                      555
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Val Arg Arg Pro Trp Glu Lys Asn Ser Thr Thr Leu Pro Arg Met Lys
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                        570
Ser Ser Ser Ser Val Thr Thr Ser Glu Thr Gln Pro Cys Thr Pro Ser
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Ser Ser Asp Tyr Ser Asp Leu Gln Arg Val Lys Gln Glu Leu Leu Glu
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Glu Val Lys Lys Glu Leu Gln Lys Val Lys Glu Glu Ile Ile Glu Ala
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Phe Val Gln Glu Leu Arg Lys Arg Gly Ser Pro
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gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                       96
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                2.5
                                                                      144
gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                                                 45
                            40
tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
                                                                      192
Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
                                            60
                                                                      240
ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
                                         75
                    70
cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
                                                                      288
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
                85
                                    90
cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
                                                                      336
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
                                105
                                                    110
            100
gtg aag ttc gag ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc
                                                                      384
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
                            120
        115
atc gac ttc aag gag gac ggc aac atc ctg ggg cac aag ctg gag tac
                                                                      432
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
                                             140
                         135
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aac tac aac agc cac aac gtc tat atc atg gcc gac aag cag aac

Asn 145	Tyr	Asn	Ser	His	Asn 150	Val	Tyr	Ile	Met	Ala 155	Asp	Lys	Gln	Lys	Asn 160	
Gly	Ile	Lys	Val	Asn 165	ttc Phe	Lys	Ile	Arg	His 170	Asn	Ile	Glu	Asp	Gly 175	Ser	528
gtg Val	cag Gln	ctc Leu	gcc Ala 180	gac Asp	cac His	tac Tyr	cag Gln	cag Gln 185	aac Asn	acc Thr	ccc Pro	atc Ile	ggc Gly 190	gac Asp	ggc Gly	576
ccc Pro	gtg Val	ctg Leu 195	ctg Leu	ccc Pro	gac Asp	aac Asn	cac His 200	tac Tyr	ctg Leu	agc Ser	acc Thr	cag Gln 205	tcc Ser	gcc Ala	ctg Leu	624
agc Ser	aaa Lys 210	gac	ccc Pro	aac Asn	gag Glu	aag Lys 215	cgc	gat Asp	cac His	atg Met	gtc Val 220	ctg Leu	ctg Leu	gag Glu	ttc Phe	672
gtg Val 225	acc	gcc Ala	gcc Ala	ggg Gly	atc Ile 230	act	ctc Leu	ggc Gly	atg Met	gac Asp 235	gag Glu	ctg Leu	tac Tyr	aag Lys	tcc Ser 240	720
gga	ctc Leu	aga Arg	tct Ser	cga Arg 245	gct Ala	caa Gln	gct Ala	tca Ser	atg Met 250	gct Ala	gcc Ala	atc Ile	cgg Arg	aag Lys 255	aaa Lys	768
ctg Leu	gtg Val	att Ile	gtt Val 260	ggt	gat Asp	gga Gly	gcc Ala	tgt Cys 265	gga	aag Lys	aca Thr	tgc Cys	ttg Leu 270	ctc Leu	ata Ile	816
gtc Val	ttc Phe	agc Ser 275	aaq	gac Asp	cag Gln	ttc Phe	cca Pro 280	gag	gtg Val	tat Tyr	gtg Val	ccc Pro 285	aca	gtg Val	ttt Phe	864
gag Glu	aac Asn 290	tat	gtg Val	gca Ala	gat Asp	atc Ile 295	gag	gtg Val	gat Asp	gga Gly	aag Lys 300	cag Gln	gta Val	gag Glu	ttg Leu	912
gct Ala 305	t.t.a	tgg Trp	gac Asp	aca Thr	gct Ala 310	aaa	cag Gln	gaa Glu	gat Asp	tat Tyr 315	gat	cgc Arg	ctg Leu	agg Arg	ccc Pro 320	960
ctc	tcc Ser	tac Tyr	cca Pro	gat Asp 325	acc Thr	gat Asp	gtt Val	ata Ile	ctg Leu 330	atg	tgt Cys	ttt Phe	tcc Ser	atc Ile 335	gac Asp	1008
agc Ser	cct Pro	gat Asp	agt Ser 340	tta	gaa Glu	aac Asn	atc Ile	cca Pro 345	gaa	aag Lys	tgg Trp	acc Thr	cca Pro 350	gaa Glu	gtc Val	1056
aag Lys	cat His	ttc Phe 355	tqt	ccc Pro	aac Asn	gtg Val	ccc Pro 360	atc	atc Ile	ctg Leu	gtt Val	ggg Gly 365	aat	aag Lys	aag Lys	1104
gat Asp	ctt Leu 370	caa	aat Asn	gat Asp	gag Glu	cac His 375	aca	agg Arg	cgg Arg	gag Glu	cta Leu 380	gcc Ala	aag Lys	atg Met	aag Lys	1152
cag Gln 385	gag Glu	ccg Pro	gtg Val	aaa Lys	cct Pro 390	gaa	gaa Glu	ggc Gly	aga Arg	gat Asp 395	Met	gca Ala	aac Asn	agg Arg	att Ile 400	1200
aac	act	ttt Phe	ggg Gly	tac Tyr 405	atg Met	gag Glu	tgt Cys	tca Ser	gca Ala 410	Lys	acc Thr	aaa Lys	gat Asp	gga Gly 415	gtg Val	1248
aga Arg	gag Glu	gtt Val	ttt Phe 420	gaa Glu	atq	gct Ala	acg Thr	aga Arg 425	Ala	gct Ala	ctg Leu	caa Gln	gct Ala 430	Arg	cgt Arg	1296
ggg Gly	aag Lys	aaa Lys 435	aaa Lys	tct	ggt Gly	tgc Cys	ctt Leu 440	Val	: ttg . Leu	tga						1329

<211> 442

<213> Artificial Sequence

<220>

<223> EGFP-RhoA fusion

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Arg Glu Val Phe Glu Met Ala Thr Arg Ala Ala Leu Gln Ala Arg Arg
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           420
Gly Lys Lys Ser Gly Cys Leu Val Leu
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       1140
<212>
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<213> Artificial Sequence
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       actin-binding-domain-EGFP fusion
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       CDS
<221>
<222>
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Met Asp His Tyr Asp Ser Gln Gln Thr Asn Asp Tyr Met Gln Pro Glu
                                    10
                5
gag gac tgg gac cgg gac ctg ctc ctg gac ccg gcc tgg gag aag cag
                                                                       96
Glu Asp Trp Asp Arg Asp Leu Leu Leu Asp Pro Ala Trp Glu Lys Gln
                                25
            20
cag aga aag aca ttc acg gca tgg tgt aac tcc cac ctc cgg aag gcg
                                                                      144
Gln Arg Lys Thr Phe Thr Ala Trp Cys Asn Ser His Leu Arg Lys Ala
                            40
        35
                                                                      192
ggg aca cag atc gag aac atc gaa gag gac ttc cgg gat ggc ctg aag
Gly Thr Gln Ile Glu Asn Ile Glu Glu Asp Phe Arg Asp Gly Leu Lys
                        55
ctc atg ctg ctg gag gtc atc tca ggt gaa cgc ttg gcc aag cca
                                                                      240
Leu Met Leu Leu Glu Val Ile Ser Gly Glu Arg Leu Ala Lys Pro
                                         75
gag cga ggc aag atg aga gtg cac aag atc tcc aac gtc aac aag gcc
                                                                      288
Glu Arg Gly Lys Met Arg Val His Lys Ile Ser Asn Val Asn Lys Ala
                                     90
                85
 ctg gat ttc ata gcc agc aaa ggc gtc aaa ctg gtg tcc atc gga gcc
                                                                      336
Leu Asp Phe Ile Ala Ser Lys Gly Val Lys Leu Val Ser Ile Gly Ala
                                 105
                                                     110
                                                                      384
 gaa gaa atc gtg gat ggg aat gtg aag atg acc ctg ggc atg atc tgg
 Glu Glu Ile Val Asp Gly Asn Val Lys Met Thr Leu Gly Met Ile Trp
                             120
                                                125
 acc atc atc ctg cgc agg gat cca ccg gtc gcc acc atg gtg agc aag
                                                                       432
 Thr Ile Ile Leu Arg Arg Asp Pro Pro Val Ala Thr Met Val Ser Lys
                         135
                                             140
 ggc gag gag ctg ttc acc ggg gtg gtg ccc atc ctg gtc gag ctg gac
                                                                       480
 Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp
                                         155
                    150
 ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc gag ggc gag ggc
                                                                       528
 Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly
                                     170
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gat gcc acc tac ggc aag ctg acc ctg aag ttc atc tgc acc acc ggc

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Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly
                               185
          180
                                                                      624
aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc ctg acc tac ggc
Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly
                            200
gtg cag tgc ttc agc cgc tac ccc gac cac atg aag cag cac gac ttc
                                                                      672
Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp Phe
                                            220
                        215
ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag cgc acc atc ttc
                                                                      720
Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe
                                        235
                   230
                                                                      768
ttc aag gac gac ggc aac tac aag acc cgc gcc gag gtg aag ttc gag
Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu
                                    250
               245
ggc gac acc ctg gtg aac cgc atc gag ctg aag ggc atc gac ttc aag
                                                                      816
Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys
                                                    270
                                265
                                                                      864
gag gac ggc aac atc ctg ggg cac aag ctg gag tac aac tac aac agc
Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser
                            280
       275
cac aac gtc tat atc atg gcc gac aag cag aag aac ggc atc aag gtg
                                                                      912
His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val
                                            300
                       295
aac ttc aag atc cgc cac aac atc gag gac ggc agc gtg cag ctc gcc
                                                                      960
Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala
                    310
                                        315
                                                                     1008
gac cac tac cag cag aac acc ccc atc ggc gac ggc ccc gtg ctg
Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu
                                    330
                325
ccc gac aac cac tac ctg agc acc cag tcc gcc ctg agc aaa gac ccc
                                                                     1056
Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro
                                                  350
                                345
aac gag aag cgc gat cac atg gtc ctg ctg gag ttc gtg acc gcc gcc
                                                                     1104
Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala
                                                 365
                            360
        355
                                                                     1140
ggg atc act ctc ggc atg gac gag ctg tac aag taa
Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
                        375
    370
<210>
       129
<211>
       379
<212>
       PRT
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<213> Artificial Sequence

<220>

<223> actin-binding-domain-EGFP fusion

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Glu Arg Gly Lys Met Arg Val His Lys Ile Ser Asn Val Asn Lys Ala
                                90
              85
Leu Asp Phe Ile Ala Ser Lys Gly Val Lys Leu Val Ser Ile Gly Ala
                            105
          100
Glu Glu Ile Val Asp Gly Asn Val Lys Met Thr Leu Gly Met Ile Trp
                       120
Thr Ile Ile Leu Arg Arg Asp Pro Pro Val Ala Thr Met Val Ser Lys
                    135
                                      140
Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp
                                   155
          150
Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly
             165
                                170
                                                  175
Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly
          180
                            185
Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly
               200
      195
Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp Phe
        215
                            220
Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe
       230 235
Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu
                                250
              245
Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys
                                              270
                            265
          260
Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser
                         280
       275
His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val
                                      300
                     295
Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala
                 310
                                   315
Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu
                                330
              325
Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro
                         345 350
          340
Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala
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Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys
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<211> 3516

<212> DNA

<213> Artificial Sequence

<220>

<223> EGFP-NFAT fusion

<220>

<221> CDS

<222> (1)..(3513)

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1 gtc g		at a	a > a	5	a 2 a	at a	330	~~~	10	224	++0	200	~+ ~	15	~~~	96
Val G				-	-					_		-				90
gag g Glu G																144
		35					40					45				
tgc a Cys T 5																192
ctg a Leu T 65																240
cag c	cac	gac	ttc	ttc		tcc	gcc	atg	ccc		ggc	tac	gtc	cag		288
Gln H	lis	Asp	Phe	Phe 85	Lys	Ser	Ala	Met	Pro 90	Glu	Gly	Tyr	Val	Gln 95	Glu	
cgc a																336
Arg T			100		_	_	-	105		-	-		110			204
gtg a Val L																384
atc g	jac		aag	gag	gac	ggc		atc	ctg	ggg	cac		ctg	gag	tac	432
Ile A																
aac t																480
Asn T 145	_				150		_			155	_	-		-	160	
ggc a Gly I		-	-			_		_					-		_	528
gtg c Val G							_	_						-		576
ccc g			180	_		_		185					190	_	-	624
Pro V																024
agc a	aaa		ccc	aac	gag	aag		gat	cac	atg	gtc		ctg	gag	ttc	672
Ser L 2	ys 210	Asp	Pro	Asn	Glu	Lys 215	Arg	Asp	His	Met	Val 220	Leu	Leu	Glu	Phe	
gtg a																720
Val T 225	ınr	Ата	Ата	GIĀ	230	Thr	Leu	стА	Met	235	GIU	Leu	Tyr	гàг	Ser 240	
gga c	ctc	aga	tct	cga		atg	aac	gcc	ccc		cgg	cag	ccc	caa		768
Gly L		-		245					250					255		
gac g Asp G																816
gag c		_						_				_		_		864
Glu L		275					280	_	_		_	285				
gaa g	_		-		_		-	_	-	_						912
	290					295	_				300			_		
gca t																960
Ala T 305	ı'yr	Pro	Asp	Asp	Val 310	Met	Asp	Tyr	Gly	Leu 315	Lys	Pro	Tyr	Ser	Pro 320	
555					510					010					J_ 0	

	gct Ala															1008
	g gta g Val			cag					gcg					ggg		1056
	g ggc	_	agc					atc		_			gaa	_		1104
	g gca n Ala 370	gtg				_	atg	_	-			ctc	_			1152
	g cct n Pro		_	_		gtg	_	_	_	_	agg			_		1200
gt	g ccc l Pro				ggc					ctt					gct	1248
_	agc Ser			tct	_	-			tct	_				ccc		1296
	tcg Ser		tgc	_	_			aac				_	gac	_	-	1344
	g cag Gln 450	ttt					gct					aga		_		1392
	a atg e Met			_		agc		_		_	agc	_	_		•	1440
ca	tcg S Ser				cgt	_	_		_	tcc		_			gcc	1488
	g cgg s Arg			tcg					ttg					ccc		1536
-	c tca a Ser		cag	_			-	ccc	_	_	-		tca			1584
	g gca l Ala 530	ccc					tcc					ccc				1632
	c tct y Ser	_			_	gat	_	_		_	ctc	-	-	_	_	1680
CC	t tgt c Cys				ccc					acc					tcg	1728
	g gtg o Val		_	gcc			_	_	ggc	_		-		atc		1776
	g gcc o Ala		gag					tgc								1824
	g gct r Ala 610	cca Pro					ctg					tgg				1872
	g gtg u Val	cct	_			atc	_	_					-			1920
cc	t cca o Pro				ccg					tca Ser						1968

					ccc Pro											2016
					gct Ala											2064
_	_				tac Tyr	_	_		-		_			-		2112
Phe 705	Ile	Gly	Thr	Āla	gat Asp 710	Glu	Arg	Ile	Leu	Lys 715	Pro	His	Ala	Phe	Tyr 720	2160
Gln	Val	His	Arg	Ile 725	acg Thr	Gly	Lys	Thr	Val 730	Thr	Thr	Thr	Ser	Tyr 735	Glu	2208
Lys	Ile	Val	Gly 740	Asn	acc Thr	Lys	Val	Leu 745	Glu	Ile	Pro	Leu	Glu 750	Pro	Lys	2256
Asn	Asn	Met 755	Arg	Ala	acc Thr	Ile	Asp 760	Cys	Ala	Gly	Ile	Leu 765	Lys	Leu	Arg	2304
Asn	Āla 770	Asp	Ile	Glu	ctg Leu	Arg 775	Lys	Gly	Glu	Thr	Asp 780	Ile	Gly	Arg	Lys	2352
Asn 785	Thr	Arg	Val	Arg	ctg Leu 790	Val	Phe	Arg	Val	His 795	Ile	Pro	Glu	Ser	Ser 800	2400
Gly	Arg	Ile	Val	Ser 805	tta Leu	Gln	Thr	Āla	Ser 810	Asn	Pro	Ile	Glu	Cys 815	Ser	2448
Gln	Arg	Ser	Ala 820	His	gag Glu	Leu	Pro	Met 825	Val	Glu	Arg	Gln	Asp 830	Thr	Asp	2496
Ser	Cys	Leu 835	Val	Tyr	ggc	Gly	Gln 840	Gln	Met	Ile	Leu	Thr 845	Gly	Gln	Asn	2544
Phe	Thr 850	Ser	Glu	Ser	aaa Lys	Val 855	Val	Phe	Thr	Glu	Lys 860	Thr	Thr	Asp	Gly	2592 2640
Gln 865	Gln	Ile	Trp	Glu	atg Met 870	Glu	Ala	Thr	Val	Asp 875	Lys	Asp	Lys	Ser	Gln 880	2640
Pro	Asn	Met	Leu	Phe 885	gtt Val gtg	Glu	Ile	Pro	Glu 890	Tyr	Arg	Asn	Lys	His 895	Ile	2736
Arg	Thr	Pro	Val 900	Lys	Val	Asn	Phe	Tyr 905	Val	Ile	Asn	Gly	Lys 910	Arg	Lys	2784
Arg	Ser	Gln 915	Pro	Gln	His	Phe	Thr 920	Tyr	His	Pro	Val	Pro 925	Ala	Ile	Lys	2832
Thr	Glu 930	Pro	Thr	Asp	Glu	Tyr 935	Asp	Pro	Thr	Leu	Ile 940	Cys	Ser	Pro	Thr	2880
His 945	ĞÎy	Ğĺy	Leu	Gly	Ser 950	Gln	Pro	Tyr	Tyr	Pro 955	Gln	His	Pro	Met	Val 960	2928
Ala	Glu	Ser	Pro	Ser 965	tgc Cys	Leu	Val	Ala	Thr 970	Met	Ala	Pro	Cys	Gln 975	Gln	
					tca Ser											2976

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cca gcg gcc gta ctc tac cag cgg agc aag agc ctg agc ccc agc ctg
                                                                                          3024
Pro Ala Ala Val Leu Tyr Gln Arg Ser Lys Ser Leu Ser Pro Ser Leu
                                                               1005
                                   1000
ctg ggc tat cag cag ccg gcc ctc atg gcc gcc ccg ctg tcc ctt
Leu Gly Tyr Gln Gln Pro Ala Leu Met Ala Ala Pro Leu Ser Leu
                                                                                          3069
                                1015
                                                             1020
    1010
gcg gac gct cac cgc tct gtg ctg gtg cac gcc ggc tcc cag ggc
Ala Asp Ala His Arg Ser Val Leu Val His Ala Gly Ser Gln Gly
                                                                                          3114
                                                             1035
                                 1030
cag age to gee etg etc cae ecc tet eeg ace aac eag eag gee Gln Ser Ser Ala Leu Leu His Pro Ser Pro Thr Asn Gln Gln Ala
                                                                                          3159
                                                            1050
     1040
                                 1045
                                                                                          3204
tcg cct gtg atc cac tac tca ccc acc aac cag cag ctg cgc tgc
Ser Pro Val Ile His Tyr Ser Pro Thr Asn Gln Gln Leu Arg Cys
                               1060
                                                            1065
gga agc cac cag gag ttc cag cac atc atg tac tgc gag aat ttc Gly Ser His Gln Glu Phe Gln His Ile Met Tyr Cys Glu Asn Phe
                                                                                          3249
    1070
                               1075
                                                             1080
gca cca ggc acc acc aga cct ggc ccg ccc ccg gtc agt caa ggt
Ala Pro Gly Thr Thr Arg Pro Gly Pro Pro Pro Val Ser Gln Gly
                                                                                           3294
                        1090
                                                        1095
     1085
cag agg ctg agc ccg ggt tcc tac ccc aca gtc att cag cag cag
                                                                                           3339
Gln Arg Leu Ser Pro Gly Ser Tyr Pro Thr Val Ile Gln Gln
                                                             1110
                               1105
    1100
aat gcc acg agc caa aga gcc gcc aaa aac gga ccc ccg gtc agt
Asn Ala Thr Ser Gln Arg Ala Ala Lys Asn Gly Pro Pro Val Ser
                                                                                           3384
                                                             1125
    1115
                                 1120
gac caa aag gaa gta tta cct gcg ggg gtg acc att aaa cag gag
Asp Gln Lys Glu Val Leu Pro Ala Gly Val Thr Ile Lys Gln Glu
                                                                                           3429
                                 1135
                                                             1140
     1130
                                                                                           3474
cag aac ttg gac cag acc tac ttg gat gat gtt aat gaa att atc
Gln Asn Leu Asp Gln Thr Tyr Leu Asp Asp Val Asn Glu Ile Ile
                                                             1155
                                 1150
agg aag gag ttt tca gga cct cct gcc aga aat cag acg taa
Arg Lys Glu Phe Ser Gly Pro Pro Ala Arg Asn Gln Thr
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                                 1165
                                                             1170
     1160
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<211> 1171

<212> PRT

<213> Artificial Sequence

<220>

<223> EGFP-NFAT fusion

<400> 131 Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu

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90
               85
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
                   105
          100
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
                      120
      115
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
                     135
                                         140
Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
                                     155
                  150
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
                                 170
               165
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
                                                190
                             185
           180
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
                         200
                                             205
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
                                         220
                      215
Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
                           235
                  230
Gly Leu Arg Ser Arg Ala Met Asn Ala Pro Glu Arg Gln Pro Gln Pro
                    250
               245
Asp Gly Gly Asp Ala Pro Gly His Glu Pro Gly Gly Ser Pro Gln Asp
                   265
           260
Glu Leu Asp Phe Ser Ile Leu Phe Asp Tyr Glu Tyr Leu Asn Pro Asn
                                             285
                280
Glu Glu Glu Pro Asn Ala His Lys Val Ala Ser Pro Pro Ser Gly Pro
                                         300
           295
Ala Tyr Pro Asp Asp Val Met Asp Tyr Gly Leu Lys Pro Tyr Ser Pro
                                     315
                   310
Leu Ala Ser Leu Ser Gly Glu Pro Pro Gly Arg Phe Gly Glu Pro Asp
                                  330
               325
Arg Val Gly Pro Gln Lys Phe Leu Ser Ala Ala Lys Pro Ala Gly Ala
                              345
Ser Gly Leu Ser Pro Arg Ile Glu Ile Thr Pro Ser His Glu Leu Ile
                                             365
                        360
Gln Ala Val Gly Pro Leu Arg Met Arg Asp Ala Gly Leu Leu Val Glu
                                        380
                      375
Gln Pro Pro Leu Ala Gly Val Ala Ala Ser Pro Arg Phe Thr Leu Pro
                                     395
                   390
Val Pro Gly Phe Glu Gly Tyr Arg Glu Pro Leu Cys Leu Ser Pro Ala
                                  410
               405
 Ser Ser Gly Ser Ser Ala Ser Phe Ile Ser Asp Thr Phe Ser Pro Tyr
                   . 425
                                                 430
 Thr Ser Pro Cys Val Ser Pro Asn Asn Gly Gly Pro Asp Asp Leu Cys
                                              445
                          440
 Pro Gln Phe Gln Asn Ile Pro Ala His Tyr Ser Pro Arg Thr Ser Pro
                       455
 Ile Met Ser Pro Arg Thr Ser Leu Ala Glu Asp Ser Cys Leu Gly Arg
                                      475
                   470
 His Ser Pro Val Pro Arg Pro Ala Ser Arg Ser Ser Pro Gly Ala
                                                     495
                                  490
                485
 Lys Arg Arg His Ser Cys Ala Glu Ala Leu Val Ala Leu Pro Pro Gly
                               505
            500
 Ala Ser Pro Gln Arg Ser Arg Ser Pro Ser Pro Gln Pro Ser Ser His
                           520
 Val Ala Pro Gln Asp His Gly Ser Pro Ala Gly Tyr Pro Pro Val Ala
                                        540
                       535
 Gly Ser Ala Val Ile Met Asp Ala Leu Asn Ser Leu Ala Thr Asp Ser
                               555
                 550
 Pro Cys Gly Ile Pro Pro Lys Met Trp Lys Thr Ser Pro Asp Pro Ser
                                  570
               565
 Pro Val Ser Ala Ala Pro Ser Lys Ala Gly Leu Pro Arg His Ile Tyr
                               585
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Pro Ala Val Glu Phe Leu Gly Pro Cys Glu Gln Gly Glu Arg Arg Asn
            600
  595
Ser Ala Pro Glu Ser Ile Leu Leu Val Pro Pro Thr Trp Pro Lys Pro
                                       620
                    615
Leu Val Pro Ala Ile Pro Ile Cys Ser Ile Pro Val Thr Ala Ser Leu
                                    635
       630
Pro Pro Leu Glu Trp Pro Leu Ser Ser Gln Ser Gly Ser Tyr Glu Leu
                                650
Arg Ile Glu Val Gln Pro Lys Pro His His Arg Ala His Tyr Glu Thr
                                              670
                            665
Glu Gly Ser Arg Gly Ala Val Lys Ala Pro Thr Gly Gly His Pro Val
                                          685
                        680
Val Gln Leu His Gly Tyr Met Glu Asn Lys Pro Leu Gly Leu Gln Ile
                     695
Phe Ile Gly Thr Ala Asp Glu Arg Ile Leu Lys Pro His Ala Phe Tyr
                                    715
                 710
Gln Val His Arg Ile Thr Gly Lys Thr Val Thr Thr Thr Ser Tyr Glu
                             730
              725
Lys Ile Val Gly Asn Thr Lys Val Leu Glu Ile Pro Leu Glu Pro Lys
                   745
          740
Asn Asn Met Arg Ala Thr Ile Asp Cys Ala Gly Ile Leu Lys Leu Arg
                                 765
                        760
     755
Asn Ala Asp Ile Glu Leu Arg Lys Gly Glu Thr Asp Ile Gly Arg Lys
                                        780
            775
Asn Thr Arg Val Arg Leu Val Phe Arg Val His Ile Pro Glu Ser Ser
                 790
                                    795
Gly Arg Ile Val Ser Leu Gln Thr Ala Ser Asn Pro Ile Glu Cys Ser
                               810
              805
Gln Arg Ser Ala His Glu Leu Pro Met Val Glu Arg Gln Asp Thr Asp
                                              830
                            825
           820
Ser Cys Leu Val Tyr Gly Gly Gln Gln Met Ile Leu Thr Gly Gln Asn
                                          845
                        840
Phe Thr Ser Glu Ser Lys Val Val Phe Thr Glu Lys Thr Thr Asp Gly
                    855
Gln Gln Ile Trp Glu Met Glu Ala Thr Val Asp Lys Asp Lys Ser Gln
                                  875
                 870
Pro Asn Met Leu Phe Val Glu Ile Pro Glu Tyr Arg Asn Lys His Ile
                              890
              885
Arg Thr Pro Val Lys Val Asn Phe Tyr Val Ile Asn Gly Lys Arg Lys
        900 905 910
Arg Ser Gln Pro Gln His Phe Thr Tyr His Pro Val Pro Ala Ile Lys
              920
                                           925
Thr Glu Pro Thr Asp Glu Tyr Asp Pro Thr Leu Ile Cys Ser Pro Thr
                                        940
                   935
His Gly Gly Leu Gly Ser Gln Pro Tyr Tyr Pro Gln His Pro Met Val
                                    955
                  950
Ala Glu Ser Pro Ser Cys Leu Val Ala Thr Met Ala Pro Cys Gln Gln
                                 970
               965
Phe Arg Thr Gly Leu Ser Ser Pro Asp Ala Arg Tyr Gln Gln Asn
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Pro Ala Ala Val Leu Tyr Gln Arg Ser Lys Ser Leu Ser Pro Ser Leu
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 Gly Ser His Gln Glu Phe Gln His Ile Met Tyr Cys Glu Asn Phe
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 Ala Pro Gly Thr Thr Arg Pro Gly Pro Pro Pro Val Ser Gln Gly
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Asp Gln Lys Glu Val Leu Pro Ala Gly Val Thr Ile Lys Gln Glu
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Gln Asn Leu Asp Gln Thr Tyr Leu Asp Asp Val Asn Glu Ile Ile
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Gly His Glu Pro Gly Gly Ser Pro Gln Asp Glu Leu Asp Phe Ser Ile
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                               25
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ctc ttc gac tat gag tat ttg aat ccg aac gaa gaa gag ccg aat gca
Leu Phe Asp Tyr Glu Tyr Leu Asn Pro Asn Glu Glu Glu Pro Asn Ala
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cat aag gtc gcc agc cca ccc tcc gga ccc gca tac ccc gat gat gta
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His Lys Val Ala Ser Pro Pro Ser Gly Pro Ala Tyr Pro Asp Asp Val
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                                                                   240
atg gac tat ggc ctc aag cca tac agc ccc ctt gct agt ctc tct ggc
Met Asp Tyr Gly Leu Lys Pro Tyr Ser Pro Leu Ala Ser Leu Ser Gly
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                   70
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 gag ccc ccc ggc cga ttc gga gag ccg gat agg gta ggg ccg cag aag
 Glu Pro Pro Gly Arg Phe Gly Glu Pro Asp Arg Val Gly Pro Gln Lys
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                                   90
 ttt ctg agc gcg gcc aag cca gca ggg gcc tcg ggc ctg agc cct cgg
                                                                   336
 Phe Leu Ser Ala Ala Lys Pro Ala Gly Ala Ser Gly Leu Ser Pro Arg
                               105
                                                                   384
 atc gag atc act ccg tcc cac gaa ctg atc cag gca gtg ggg ccc ctc
 Ile Glu Ile Thr Pro Ser His Glu Leu Ile Gln Ala Val Gly Pro Leu
                           120
 cgc atg aga gac gcg ggc ctc ctg gtg gag cag cct ccc ctg gcc ggg
                                                                   432
 Arg Met Arg Asp Ala Gly Leu Leu Val Glu Gln Pro Pro Leu Ala Gly
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gtg Val 145	gcc Ala	gcc Ala	agc Ser	ccg Pro	agg Arg 150	ttc Phe	acc Thr	ctg Leu	ccc Pro	gtg Val 155	ccc Pro	ggc Gly	ttc Phe	gag Glu	ggc Gly 160	480
Tyr	Arg	Glu	ccg Pro	Leu 165	Cys	Leu	Ser	Pro	Ala 170	Ser	Ser	Gly	Ser	Ser 175	Ala	528
Ser	Phe	Ile	tct Ser 180	Asp	Thr	Phe	Ser	Pro 185	Tyr	Thr	Ser	Pro	Cys 190	Val	Ser	576
Pro	Asn	Asn 195	ggc Gly	Gly	Pro	Asp	Asp 200	Leu	Cys	Pro	Gln	Phe 205	Gln	Asn	Ile	624
Pro	Ala 210	His	tat Tyr	Ser	Pro	Arg 215	Thr	Ser	Pro	Ile	Met 220	Ser	Pro	Arg	Thr	672
Ser 225	Leu	Ala	gag Glu	Asp	Ser 230	Cys	Leu	Gly	Arg	His 235	Ser	Pro	Val	Pro	Arg 240	720
Pro	Ala	Ser	cgc Arg	Ser 245	Ser	Ser	Pro	Gly	Ala 250	Lys	Arg	Arg	His	Ser 255	Cys	768
Ala	Glu	Ala	ttg Leu 260	Val	Ala	Leu	Pro	Pro 265	Gly	Ala	Ser	Pro	Gln 270	Arg	Ser	816
Arg	Ser	Pro 275	tcg Ser	Pro	Gln	Pro	Ser 280	Ser	His	Val	Ala	Pro 285	Gln	Asp	His	864
Gly	Ser 290	Pro	gct Ala	Gly	Tyr	Pro 295	Pro	Val	Ala	Gly	Ser 300	Ala	Val	Ile	Met	912
Asp 305	Ala	Leu	aac Asn	Ser	Leu 310	Ala	Thr	Asp	Ser	Pro 315	Cys	Gly	Ile	Pro	Pro 320	960
Lys	Met	Trp	aag Lys	Thr 325	Ser	Pro	Asp	Pro	Ser 330	Pro	Val	Ser	Ala	Ala 335	Pro	1008
Ser	Lys	Ala	ggc Gly 340	Leu	Pro	Arg	His	Ile 345	Tyr	Pro	Ala	Val	Glu 350	Phe	Leu	1056
Gly	Pro	Cys 355	gag Glu	Gln	Gly	Glu	Arg 360	Arg	Asn	Ser	Ala	Pro 365	Glu	Ser	Ile	1104
Leu	Leu 370	Val	ccg Pro	Pro	Thr	Trp 375	Pro	Lys	Pro	Leu	Val 380	Pro	Ala	Ile	Pro	1152
Ile 385	Суѕ	Ser	atc Ile	Pro	Val 390	Thr	Ala	Ser	Leu	Pro 395	Pro	Leu	Glu	Trp	Pro 400	1200
Leu	Ser	Ser	cag Gln	Ser 405	Gly	Ser	Tyr	Glu	Leu 410	Arg	Ile	Glu	Val	Gln 415	Pro	1248
Lys	Pro	His	cac His 420	Arg	Ala	His	Tyr	Glu 425	Thr	Glu	Gly	Ser	Arg 430	Gly	Ala	1296
Val	Lys	Ala 435	cca Pro	Thr	Gly	Gly	His 440	Pro	Val	Val	Gln	Leu 445	His	Gly	Tyr	1344
Met	Glu 450	Asn	aag Lys	Pro	Leu	Gly 455	Leu	Gln	Ile	Phe	Ile 460	Gly	Thr	Ala	Asp	1392
gag Glu 465	cgg Arg	atc Ile	ctt Leu	aag Lys	ccg Pro 470	cac His	gcc Ala	ttc Phe	tac Tyr	cag Gln 475	gtg Val	cac His	cga Arg	atc Ile	acg Thr 480	1440

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					acc Thr											1488
aaa	atc	cta	gag	atc	ccc	ttq	gag	ccc	aaa	aac	aac	atg	agg	gca	acc	1536
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Ile	Asp	Cys 515	Ala	Gly	Ile	Leu	Lys 520	Leu	Arg	Asn	Ala	Asp 525	Ile	Glu	Leu	
cgg	aaa	ggc	gag	acg	gac	att	gga	aga	aag	aac	acg	cgg	gtg	aga	ctg	1632
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gtt	ttc	cga	gtt	cac	atc	cca	gag	tcc	agt	ggc	aga	atc	gtc	tct	tta	1680
Val	Phe	Arg	Val	His	Ile	Pro	Glu	Ser	Ser	Gly	Arg	Ile	Val	Ser	Leu	
545					550					555					560	
					ccc											1728
				565	Pro				570					575		
					aga											1776
			580		Arg		_	585	-		_		590	_	_	1004
					ctc											1824
-		595			Leu		600					605			_	1070
					aag											1872-
	610				Lys	615					620					1020
gaa	gcc	acg	grg	gat	aag	gac	aag	agc	cag	CCC	aac	atg	TOU	Dho	gii Wal	1920
	Ата	Thr	val	Asp	Lys	Asp	ьуѕ	ser	GIII	635	ASII	мес	теп	Pile	640	
625	a <del>+</del>	-a+	~~~	+ - +	630	220	224	ast	2+0		202	aat	at a	222		1968
					cgg Arg											1900
				645					650					655		
aac	ttc	tac	gtc	atc	aat	ggg	aag	aga	aaa	cga	agt	cag	cct	cag	cac	2016
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		675			Val		680					685				0110
tat	gac	CCC	act	ctg	atc	tgc	agc	CCC	acc	cat	gga	ggc	ctg	ggg	agc	2112
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	Pro	Tyr	туr	Pro	Gln 710	HIS	Pro	мес	vaı		GLU	ser	PIO	ser	720	
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rea	vaı	пта	1111	725	лла	110	Cys	GIII	730	1110	ALG	1111	OTY	735	501	
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caq	cqq	agc	aaq	agc	ctg	agc	ccc	agc	ctg	ctg	ggc	tat	cag	cag	ccg	2304
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	_	755	_				760					765				
gcc	ctc	atg	gcc	gcc	ccg	ctg	tcc	ctt	gcg	gac	gct	cac	cgc	tct	gtg	2352
Ala	Leu 770	Met	Ala	Ala	Pro	Leu 775	Ser	Leu	Ala	Asp	Ala 780	His	Arg	Ser	Val	
c+~		cac	acc	aac	tcc		aac	car	acc	tc=		cta	ctc	cac	CCC	2400
					Ser											2100
785	• 41			- L y	790	~	1			795					800	
	cca	acc	aac	caσ	cag	gcc	tca	cct	gta		cac	tac	tca	ccc		2448
	_			_	Gln	_	_									
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aac cag cag ctg cgc tgc gga agc cac cag gag ttc cag cac atc atg
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Asn Gln Gln Leu Arg Cys Gly Ser His Gln Glu Phe Gln His Ile Met
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                                                              830
tac tgc gag aat ttc gca cca ggc acc acc aga cct ggc ccg ccc ccg
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Tyr Cys Glu Asn Phe Ala Pro Gly Thr Thr Arg Pro Gly Pro Pro
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                                 840
                                                         845
gtc agt caa ggt cag agg ctg agc ccg ggt tcc tac ccc aca gtc att
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Val Ser Gln Gly Gln Arg Leu Ser Pro Gly Ser Tyr Pro Thr Val Ile
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                                                    860
cag cag aat gcc acg agc caa aga gcc gcc aaa aac gga ccc ccg
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Gln Gln Asn Ala Thr Ser Gln Arg Ala Ala Lys Asn Gly Pro Pro
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                                               875
gtc agt gac caa aag gaa gta tta cct gcg ggg gtg acc att aaa cag
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Val Ser Asp Gln Lys Glu Val Leu Pro Ala Gly Val Thr Ile Lys Gln
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gag cag aac ttg gac cag acc tac ttg gat gat gtt aat gaa att atc
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Glu Gln Asn Leu Asp Gln Thr Tyr Leu Asp Asp Val Asn Glu Ile Ile
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agg aag gag ttt tca gga cct cct gcc aga aat cag acg aga att ctg
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Arg Lys Glu Phe Ser Gly Pro Pro Ala Arg Asn Gln Thr Arg Ile Leu
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                                 920
                                                         925
cag tcg acg gta ccg cgg gcc cgg gat cca ccg gtc gcc acc atg gtg
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Gln Ser Thr Val Pro Arg Ala Arg Asp Pro Pro Val Ala Thr Met Val
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age aag gge gag gag etg tte ace ggg gtg gtg cee ate etg gte gag
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Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu
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                                               955
ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc gag ggc
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Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly
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                                           970
gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc tgc acc
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Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr
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acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc ctg acc
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Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr
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                                 1000
                                                         1005
tac ggc \, gtg cag tgc ttc agc \, cgc tac ccc gac cac \, atg aag cag Tyr Gly \, Val Gln Cys Phe Ser \, Arg Tyr Pro Asp His \, Met Lys Gln \,
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cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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cgc acc atc ttc ttc aag gac ggc aac tac aag acc cgc gcc
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Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala
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                             1045
                                                      1050
gag gtg \, aag ttc gag ggc gac \, acc ctg gtg aac cgc \, atc gag ctg Glu Val \, Lys Phe Glu Gly Asp \, Thr Leu Val Asn Arg \, Ile Glu Leu
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aag ggc \, atc gac ttc aag gag \, gac ggc \, aac atc ctg \, ggg \, cac \, aag Lys Gly \, Ile Asp Phe Lys Glu \, Asp Gly \, Asn Ile Leu \, Gly \, His Lys \,
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ctg gag tac aac tac aac agc cac aac gtc tat atc atg gcc gac
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Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp
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                             1090
                                                      1095
aag cag aag aac ggc atc aag gtg aac ttc aag atc cgc cac aac Lys Gln \, Lys \, Asn \, Gly \, Ile \, Lys \, Val \, Asn \, Phe \, Lys \, Ile \, Arg \, His \, Asn \,
                                                                                 3339
                              1105
     1100
                                                      1110
atc gag \, gac ggc agc gtg cag \, ctc gcc gac cac tac \, cag cag aac Ile Glu \, Asp Gly Ser Val Gln \, Leu Ala Asp His Tyr \, Gln Gln Asn \,
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                             1120
                                                      1125
acc ccc atc ggc gac ggc ccc gtg ctg ctg ccc gac aac cac tac
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Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr
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                                                      1140
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      ctg
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      cag
      tcc
      gcc
      ctg
      agc
      aaa
      gac
      ccc
      aac
      gag
      aag
      cgc
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      Leu
      Ser
      Lys
      Asp
      Pro
      Asn
      Glu
      Lys
      Arg

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      gtc
      ctg
      gag
      tc
      gtg
      acc
      gcc
      ggg
      act
      act
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      His
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      Val
      Leu
      Glu
      Phe
      Val
      Thr
      Ala
      Ala
      Gly
      Ile
      Thr

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Asp Ala Leu Asn Ser Leu Ala Thr Asp Ser Pro Cys Gly Ile Pro Pro
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                                     315
Lys Met Trp Lys Thr Ser Pro Asp Pro Ser Pro Val Ser Ala Ala Pro
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              325
Ser Lys Ala Gly Leu Pro Arg His Ile Tyr Pro Ala Val Glu Phe Leu
           340
                             345
Gly Pro Cys Glu Gln Gly Glu Arg Arg Asn Ser Ala Pro Glu Ser Ile
                         360
                                           365
Leu Leu Val Pro Pro Thr Trp Pro Lys Pro Leu Val Pro Ala Ile Pro
                  375
                           380
Ile Cys Ser Ile Pro Val Thr Ala Ser Leu Pro Pro Leu Glu Trp Pro
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                                    395
Leu Ser Ser Gln Ser Gly Ser Tyr Glu Leu Arg Ile Glu Val Gln Pro
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Lys Pro His His Arg Ala His Tyr Glu Thr Glu Gly Ser Arg Gly Ala
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Val Lys Ala Pro Thr Gly Gly His Pro Val Val Gln Leu His Gly Tyr
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Met Glu Asn Lys Pro Leu Gly Leu Gln Ile Phe Ile Gly Thr Ala Asp
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Glu Arg Ile Leu Lys Pro His Ala Phe Tyr Gln Val His Arg Ile Thr
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Gly Lys Thr Val Thr Thr Ser Tyr Glu Lys Ile Val Gly Asn Thr
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Lys Val Leu Glu Ile Pro Leu Glu Pro Lys Asn Asn Met Arg Ala Thr
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Ile Asp Cys Ala Gly Ile Leu Lys Leu Arg Asn Ala Asp Ile Glu Leu
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                         520
Arg Lys Gly Glu Thr Asp Ile Gly Arg Lys Asn Thr Arg Val Arg Leu
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                                       540
Val Phe Arg Val His Ile Pro Glu Ser Ser Gly Arg Ile Val Ser Leu
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                                    555
Gln Thr Ala Ser Asn Pro Ile Glu Cys Ser Gln Arg Ser Ala His Glu
                                570
             565
Leu Pro Met Val Glu Arg Gln Asp Thr Asp Ser Cys Leu Val Tyr Gly
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Gly Gln Gln Met Ile Leu Thr Gly Gln Asn Phe Thr Ser Glu Ser Lys
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Val Val Phe Thr Glu Lys Thr Thr Asp Gly Gln Gln Ile Trp Glu Met
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                                        620
Glu Ala Thr Val Asp Lys Asp Lys Ser Gln Pro Asn Met Leu Phe Val
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Glu Ile Pro Glu Tyr Arg Asn Lys His Ile Arg Thr Pro Val Lys Val
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Asn Phe Tyr Val Ile Asn Gly Lys Arg Lys Arg Ser Gln Pro Gln His
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Phe Thr Tyr His Pro Val Pro Ala Ile Lys Thr Glu Pro Thr Asp Glu
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Tyr Asp Pro Thr Leu Ile Cys Ser Pro Thr His Gly Gly Leu Gly Ser
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Gln Pro Tyr Tyr Pro Gln His Pro Met Val Ala Glu Ser Pro Ser Cys
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                                    715
Leu Val Ala Thr Met Ala Pro Cys Gln Gln Phe Arg Thr Gly Leu Ser
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Ser Pro Asp Ala Arg Tyr Gln Gln Asn Pro Ala Ala Val Leu Tyr
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Gln Arg Ser Lys Ser Leu Ser Pro Ser Leu Leu Gly Tyr Gln Gln Pro
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                                            765
Ala Leu Met Ala Ala Pro Leu Ser Leu Ala Asp Ala His Arg Ser Val
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Leu Val His Ala Gly Ser Gln Gly Gln Ser Ser Ala Leu Leu His Pro
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Ser Pro Thr Asn Gln Gln Ala Ser Pro Val Ile His Tyr Ser Pro Thr
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Asn Gln Gln Leu Arg Cys Gly Ser His Gln Glu Phe Gln His Ile Met
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Tyr Cys Glu Asn Phe Ala Pro Gly Thr Thr Arg Pro Gly Pro Pro Pro
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                         840
Val Ser Gln Gly Gln Arg Leu Ser Pro Gly Ser Tyr Pro Thr Val Ile
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Gln Gln Gln Asn Ala Thr Ser Gln Arg Ala Ala Lys Asn Gly Pro Pro
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Val Ser Asp Gln Lys Glu Val Leu Pro Ala Gly Val Thr Ile Lys Gln
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Glu Gln Asn Leu Asp Gln Thr Tyr Leu Asp Asp Val Asn Glu Ile Ile
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Arg Lys Glu Phe Ser Gly Pro Pro Ala Arg Asn Gln Thr Arg Ile Leu
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                         920
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Gln Ser Thr Val Pro Arg Ala Arg Asp Pro Pro Val Ala Thr Met Val
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Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu
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Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly
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Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr
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Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr
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Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln
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                                          1020
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His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala
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Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu
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Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys
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                       1075
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Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp
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                                           1095
  1085
Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn
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                       1105
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Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn
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Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr
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Leu Ser Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg
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gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                       96
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
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                                                                      144
gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
                                                45
                            40
        35
tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc acc ctc gtg acc acc
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Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
                        55
ctg acc tac ggc gtg cag tgc ttc agc cgc tac ccc gac cac atg aag
                                                                      240
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
cag cac gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag
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Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
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cgc acc atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag
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Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
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Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
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                             120
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Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
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 ggc atc aag gtg aac ttc aag atc cgc cac aac atc gag gac ggc agc
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 Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
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 gtg cag ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc
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 Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
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                                 185
             180
 ccc gtg ctg ccc gac aac cac tac ctg agc acc cag tcc gcc ctg
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 Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
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                                                 205
                                                                       672
 age aaa gae eec aac gag aag ege gat eac atg gte etg etg gag tte
 Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Glu Phe
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Ala Leu Gln Glu Lys Ile Glu Glu Leu Arg Gln Arg Asp Ala Leu Ile

235

768

816

230

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gac Asp	gag Glu	Leu	Glu	Leu	Glu	Leu	Asp 280	Gln	Lys	Asp	Glu	Leu 285	Ile	Gln	Lys	
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Gln	Gln	Ala	Gln	Lys	Gln	Ser	Ála	Ser	Thr	Leu	Gln	Gly	Glu	Pro	ALG	
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Ğlu	Tyr	Ğly	Lys	Asp	Ser	Cys	Ile	Ile	Lys	Glu	Gly	Asp	Val	Gly	ser	
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gta	aaa	ctc	tgg	gcc	att	gat	cga	caa	tgt	ttt	caa	aca	ata	atg	Mot	1392
Val	Lys 450	Leu	Trp	Ala	Ile	Asp 455	Arg	GIn	Cys	Pne	460	Thr	116	Mec	Mec	1 4 4 0
agg	aca	gga	ctc	atc	aag	cat	acc	gag	tat	atg	gaa	ttt	tta	aaa	agc	1440
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465					470				~~~	475				ctt		1488
gtt	cca	aca	tto	cag	agc	CEE	CCL	gaa	Glu	Tle	Len	, ago . Ser	Lvs	Leu	gct Ala	
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gat	ato	ctt	gaa	gag	acc	cac	tat	gaa	aat	gga	gaa	ı tat	att	ato	agg	1536
Asp	Val	. Le	a Glu 500	ı Glu	Thr	His	Tyr	505 GIU	Asn	г СтУ	GIL	ııyı	510	116	nry	
caa	ı aat	gca	a aga	ggg	gac	acc	ttc	: ttt	ato	ato	ago	aaa	ı gga	acç	gta	1584
Glr	Gly	7 Ala	a Arç	g Gly	/ Asp	Thr	: Phe 520	Phe	116	; 11€	s sei	с Буя 525	2 2	1111	. vai	4.520
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Asr	1 Val	L Th:	r Arç	g Glu	Asp נ	Ser 535	r Pro	Ser	GIU	ı ASI	540	o va.	L PIIE	. пес	ARLY	
act	- ++:		a aaa	a gga	a gad	tgç	g ttt	gga	gaç	g aaa	a gc	c tto	g caq	g ggg	g gaa	1680
Th:	Lei	ı Gl	y Ly:	s Gl	y Asp 550	o Trp	o Phe	e GIZ	/ GIV	л Бу: 553	5 AT	а ье	u GII	ı Gı	560	
~~1	- ~+/	g ag	a aca	a qc	a aad	a ata	a att	t gct	gca	a ga	a gc	t gta	a ac	t tg	c ctt	1728
Ası	o Va	l Ar	g Th:	r Ala 56	a Ası 5	n Val	l Ile	e Ala	570	a GI	u Al	a va	Д 111.	57	5 <u>не</u> и 5	
at.	n at	t da	c ad	а па	e tei	t tt	t aa	a cat	tt	g at	t gg	a gg	g ct	g ga	t gat	1776
۷a.	l Il	e As	p Ar	g As	p Se	r Ph	e Ly	s His 585	s Le	u Il	e Gl	y Gl	y Le [*] 59	u AS	p Asp	
٠.	+ +~	+ 22	+ aa	a oc	a ta	t da	a da	t aca	a qa	a gc	t aa	a gc	a aa	a ta	t gaa	1824
۷a	l Se	r As	n Ly	s Al	а Ту	r Gl	u As	p Āla	a Gl	u Ál	а Lу	s Āl	a Ly	в Ту	r Glu	

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Leu	Lys	Ser	Glu		Ser	Lys	Thr	Phe		Met	Lys	Ile	Leu	Lys 655	Lys	
aat	G 2 G	2++	ata	645	202	aga	cad	car	650	cac	atc	cgc	t.ca		aaσ	2016
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Thr	Phe	Lys	Asp	Ser	Lys	Tyr	Leu	Tyr	Met	Leu	Met	Glu	Ala	Cys	Leu	
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ggt	gga	gag	ctc	tgg	acc Thr	att	CtC	agg	gat	aga	ggt	tcg Ser	Phe	Glu	Asp	2160
705	GTĀ	GIU	ьеи	irb	710	116	пеа	Arg	лэр	715	CLY	DCI	2.110	014	720	
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Ser	Thr	Thr	Arg		Tyr	Thr	Ala	Cys		Val	Glu	Ala	Phe		Tyr	
~+~	aa+	t a a	222	725	2+0	2++	+ = C	200	730	ctc	aan	cca	gaa	735 aat	ata	2256
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Ile	Leu	755	His	Arg	GIY	Tyr	760	ьys	ьeu	val	Asp	Phe 765	GTA	File	Ата	
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Lys	Lys	Ile	бĺу	Phe	Gly	Lys	Lys	Thr	Trp	Thr	Phe	Cys	Gly	Thr	Pro	
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Ala	Asp	Tyr	Trp	Ser 805	Leu	GIY	TTE	ьeu	810	Tyr	GIU	Leu	ьeu	815	Gry	
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LEG	agg Ara	ggg	Tle	Asp	Met	Tle	Glu	Phe	Pro	Lvs	Lvs	att Ile	Ala	Lys	Asn	2011
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Ala			Leu	Ile	Lys	Lys 855	Leu	Cys	Arg	Asp	Asn 860	Pro	Ser	GLu	Arg	
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Leu	Gly	Asn	Leu	Lys	Asn	Ğİy	Val	Lys	Āsp	Ile	Gln	Lys	His	Lys	Trp	
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ttt	gag	ggc	ttt	aac	tgg	gaa	ggc	tta	aga	aaa	ggt	acc Thr	LEG	aca Thr	cct Pro	2688
Pne	GLU	СТУ	PHE	885		Giu	Gry	пец	890		Ory		шоч	895		
cct	ata	ata	cca	agt	gtt	gca	tca	ccc	aca	gac	aca	agt	aat	ttt	gac	2736
Pro	Ile	Ile	Pro	Ser	Val	Ala	Ser	Pro	Thr	Asp	Thr	Ser	Asn	Phe	Asp	
~~+	++~	· ~~+	900		220	+בה י	na a	905 cca		aat	gat	дас	910 aac		gga	2784
Ser	Phe	Pro	Glu	Asp	Asn	Asp	Glu	Pro	Pro	Pro	Asp	Asp	Asn	Ser	Gly	• 7
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Trp	Asp	) TIE	. Asp	Phe	1											

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Glu Tyr Gly Lys Asp Ser Cys Ile Ile Lys Glu Gly Asp Val Gly Ser
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                                       395
Leu Val Tyr Val Met Glu Asp Gly Lys Val Glu Val Thr Lys Glu Gly
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Val Lys Leu Cys Thr Met Gly Pro Gly Lys Val Phe Gly Glu Leu Ala
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Ile Leu Tyr Asn Cys Thr Arg Thr Ala Thr Val Lys Thr Leu Val Asn
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Val Lys Leu Trp Ala Ile Asp Arg Gln Cys Phe Gln Thr Ile Met Met
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Arg Thr Gly Leu Ile Lys His Thr Glu Tyr Met Glu Phe Leu Lys Ser
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                                       475
Val Pro Thr Phe Gln Ser Leu Pro Glu Glu Ile Leu Ser Lys Leu Ala
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Asp Val Leu Glu Glu Thr His Tyr Glu Asn Gly Glu Tyr Ile Ile Arg
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Gln Gly Ala Arg Gly Asp Thr Phe Phe Ile Ile Ser Lys Gly Thr Val
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Asn Val Thr Arg Glu Asp Ser Pro Ser Glu Asp Pro Val Phe Leu Arg
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Thr Leu Gly Lys Gly Asp Trp Phe Gly Glu Lys Ala Leu Gln Gly Glu
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Asp Val Arg Thr Ala Asn Val Ile Ala Ala Glu Ala Val Thr Cys Leu
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Val Ile Asp Arg Asp Ser Phe Lys His Leu Ile Gly Gly Leu Asp Asp
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Val Ser Asn Lys Ala Tyr Glu Asp Ala Glu Ala Lys Ala Lys Tyr Glu
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Ala Glu Ala Ala Phe Phe Ala Asn Leu Lys Leu Ser Asp Phe Asn Ile
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Leu Lys Ser Glu Glu Ser Lys Thr Phe Ala Met Lys Ile Leu Lys Lys
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Arg His Ile Val Asp Thr Arg Gln Gln Glu His Ile Arg Ser Glu Lys
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Gln Ile Met Gln Gly Ala His Ser Asp Phe Ile Val Arg Leu Tyr Arg
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Gly Gly Glu Leu Trp Thr Ile Leu Arg Asp Arg Gly Ser Phe Glu Asp
                   710
                                       715
Ser Thr Thr Arg Phe Tyr Thr Ala Cys Val Val Glu Ala Phe Ala Tyr
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                                   730
Leu His Ser Lys Gly Ile Ile Tyr Arg Asp Leu Lys Pro Glu Asn Leu
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                               745
Ile Leu Asp His Arg Gly Tyr Ala Lys Leu Val Asp Phe Gly Phe Ala
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Lys Lys Ile Gly Phe Gly Lys Lys Thr Trp Thr Phe Cys Gly Thr Pro
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Glu Tyr Val Ala Pro Glu Ile Ile Leu Asn Lys Gly His Asp Ile Ser
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                                       795
Ala Asp Tyr Trp Ser Leu Gly Ile Leu Met Tyr Glu Leu Leu Thr Gly
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                                    10
gag ctg agg cag cgg gat gct ctc atc gac gag ctg gag ctg gag ttg
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Glu Leu Arg Gln Arg Asp Ala Leu Ile Asp Glu Leu Glu Leu Glu Leu
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gat cag aag gac gaa ctg atc cag aag ctg cag aac gag ctg gac aag
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Asp Gln Lys Asp Glu Leu Ile Gln Lys Leu Gln Asn Glu Leu Asp Lys
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Tyr Arg Ser Val Ile Arg Pro Ala Thr Gln Gln Ala Gln Lys Gln Ser
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                                            60
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Ala Ser Thr Leu Gln Gly Glu Pro Arg Thr Lys Arg Gln Ala Ile Ser
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gee gag eec ace gee tte gae ate eag gat ete age eat gtg ace etg
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Ala Glu Pro Thr Ala Phe Asp Ile Gln Asp Leu Ser His Val Thr Leu
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ccc ttc tac ccc aag agc cca cag tcc aag gat ctt ata aag gaa gct
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Pro Phe Tyr Pro Lys Ser Pro Gln Ser Lys Asp Leu Ile Lys Glu Ala
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Ile Leu Asp Asn Asp Phe Met Lys Asn Leu Glu Leu Ser Gln Ile Gln
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                            120
                                                125
gag att gtg gat tgt atg tac ccg gtg gag tat ggc aag gac agt tgc
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Glu Ile Val Asp Cys Met Tyr Pro Val Glu Tyr Gly Lys Asp Ser Cys
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cca gga aaa gtg ttt ggg gaa ttg gct att ctt tac aac tgt acc cgg
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Pro Gly Lys Val Phe Gly Glu Leu Ala Ile Leu Tyr Asn Cys Thr Arg
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aca gcg acc gtc aag act ctt gta aat gta aaa ctc tgg gcc att gat
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Thr Ala Thr Val Lys Thr Leu Val Asn Val Lys Leu Trp Ala Ile Asp
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Arg Gln Cys Phe Gln Thr Ile Met Met Arg Thr Gly Leu Ile Lys His
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Tyr Glu Asn Gly Glu Tyr Ile Ile Arg Gln Gly Ala Arg Gly Asp Thr
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                                265
                                                     270
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Lys His Leu Ile Gly Gly Leu Asp Asp Val Ser Asn Lys Ala Tyr Glu
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gat gca gaa gct aaa gca aaa tat gaa gct gaa gcg gct ttc ttc gcc
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Asp Ala Glu Ala Lys Ala Lys Tyr Glu Ala Glu Ala Ala Phe Phe Ala
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                                                365
aac ctg aag ctg tct gat ttc aac atc att gat acc ctt gga gtt gga
                                                                     1152
Asn Leu Lys Leu Ser Asp Phe Asn Ile Ile Asp Thr Leu Gly Val Gly
    370
                        375
ggt ttc gga cga gta gaa ctg gtc cag ttg aaa agt gaa gaa tcc aaa
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Gly Phe Gly Arg Val Glu Leu Val Gln Leu Lys Ser Glu Glu Ser Lys
                    390
                                       395
acg ttt gca atg aag att ctc aag aaa cgt cac att gtg gac aca aga
                                                                     1248
Thr Phe Ala Met Lys Ile Leu Lys Lys Arg His Ile Val Asp Thr Arg
                405
                                    410
cag cag gag cac atc cgc tca gag aag cag atc atg cag ggg gct cat
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Gln Glu His Ile Arg Ser Glu Lys Gln Ile Met Gln Gly Ala His
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tcc gat ttc ata gtg aga ctg tac aga aca ttt aag gac agc aaa tat
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Ser Asp Phe Ile Val Arg Leu Tyr Arg Thr Phe Lys Asp Ser Lys Tyr
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                                                445
ttg tat atg ttg atg gaa gct tgt cta ggt gga gag ctc tgg acc att
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Leu Tyr Met Leu Met Glu Ala Cys Leu Gly Gly Glu Leu Trp Thr Ile
    450
                        455
                                            460
ctc agg gat aga ggt tcg ttt gaa gat tct aca acc aga ttt tac aca
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Leu Arg Asp Arg Gly Ser Phe Glu Asp Ser Thr Thr Arg Phe Tyr Thr
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gca tgt gtg gta gaa gct ttt gcc tat ctg cat tcc aaa gga atc att
                                                                     1488
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Ala Cys Val Val Glu Ala Phe Ala Tyr Leu His Ser Lys Gly Ile Ile
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Tyr Arg Asp Leu Lys Pro Glu Asn Leu Ile Leu Asp His Arg Gly Tyr
                                505
                                                    510
                                                                     1584
gcc aaa ctg gtt gat ttt ggc ttt gca aag aaa ata gga ttt gga aag
Ala Lys Leu Val Asp Phe Gly Phe Ala Lys Lys Ile Gly Phe Gly Lys
                            520
                                                525
aaa aca tgg act ttt tgt ggg act cca gag tat gta gcc cca gag atc
                                                                     1632
Lys Thr Trp Thr Phe Cys Gly Thr Pro Glu Tyr Val Ala Pro Glu Ile
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                                            540
atc ctg aac aaa ggc cat gac att tca gcc gac tac tgg tca ctg gga
                                                                     1680
Ile Leu Asn Lys Gly His Asp Ile Ser Ala Asp Tyr Trp Ser Leu Gly
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                   550
atc cta atg tat gaa ctc ctg act ggc agc cca cct ttc tca ggc cca
                                                                     1728
Ile Leu Met Tyr Glu Leu Leu Thr Gly Ser Pro Pro Phe Ser Gly Pro
                                    570
                565
                                                                     1776
gat cct atg aaa acc tat aac atc ata ttg agg ggg att gac atg ata
Asp Pro Met Lys Thr Tyr Asn Ile Ile Leu Arg Gly Ile Asp Met Ile
                                585
                                                    590
gaa ttt cca aag aag att gcc aaa aat gct gct aat tta att aaa aaa
                                                                     1824
Glu Phe Pro Lys Lys Ile Ala Lys Asn Ala Ala Asn Leu Ile Lys Lys
                            600
cta tgc agg gac aat cca tca gaa aga tta ggg aat ttg aaa aat gga
                                                                     1872
Leu Cys Arg Asp Asn Pro Ser Glu Arg Leu Gly Asn Leu Lys Asn Gly
                                            620
                        615
                                                                     1920
gta aaa gac att caa aag cac aaa tgg ttt gag ggc ttt aac tgg gaa
Val Lys Asp Ile Gln Lys His Lys Trp Phe Glu Gly Phe Asn Trp Glu
                                        635
                    630
ggc tta aga aaa ggt acc ttg aca cct cct ata ata cca agt gtt gca
                                                                     1968
Gly Leu Arg Lys Gly Thr Leu Thr Pro Pro Ile Ile Pro Ser Val Ala
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                645
tca ccc aca qac aca agt aat ttt gac agt ttc cct gag gac aac gat
                                                                     2016
Ser Pro Thr Asp Thr Ser Asn Phe Asp Ser Phe Pro Glu Asp Asn Asp
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Glu Pro Pro Pro Asp Asp Asn Ser Gly Trp Asp Ile Asp Phe Ser Asp
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                             680
cca ccg gtc gcc acc atg gtg agc aag ggc gag gag ctg ttc acc ggg
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Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly
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gtg gtg ccc atc ctg gtc gag ctg gac ggc gac gta aac ggc cac aag
Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys
                                        715
                    710
ttc agc gtg tcc ggc gag ggc gag ggc gat gcc acc tac ggc aag ctg
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Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu
                725
                                    730
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acc ctg aag ttc atc tgc acc acc ggc aag ctg ccc gtg ccc tgg ccc
Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro
                                745
            740
                                                                     2304
acc ctc qtq acc acc ctg acc tac ggc gtg cag tgc ttc agc cgc tac
Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr
                                                 765
        755
                            760
ccc gac cac atg aag cag cac gac ttc ttc aag tcc gcc atg ccc gaa
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Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu
                        775
                                             780
                                                                     2400
ggc tac gtc cag gag cgc acc atc ttc ttc aag gac gac ggc aac tac
Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr
785
aaq acc cgc gcc gag gtg aag ttc gag ggc gac acc ctg gtg aac cgc
                                                                     2448
Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg
                805
                                    810
                                                                     2496
atc gag ctg aag ggc atc gac ttc aag gag gac ggc aac atc ctg ggg
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Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly
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           820
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His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala
                           840
       835
gac aag cag aag aac ggc atc aag gtg aac ttc aag atc cgc cac aac
                                                                    2592
Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn
                                           860
                       855
                                                                    2640
atc gag gac ggc agc gtg cag ctc gcc gac cac tac cag cag aac acc
Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr
                   870
                                       875
                                                                    2688
ccc atc ggc gac ggc ccc gtg ctg ctc gac aac cac tac ctg agc
Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser
                                   890
               885
acc cag tee gee etg age aaa gac eee aac gag aag ege gat eac atg
                                                                    2736
Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met
                               905
gtc ctg ctg gag ttc gtg acc gcc gcg gtg atc act ctc ggc atg gac
                                                                    2784
Val Leu Leu Glu Phe Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp
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Thr Ala Thr Val Lys Thr Leu Val Asn Val Lys Leu Trp Ala Ile Asp Arg Gln Cys Phe Gln Thr Ile Met Met Arg Thr Gly Leu Ile Lys His Thr Glu Tyr Met Glu Phe Leu Lys Ser Val Pro Thr Phe Gln Ser Leu Pro Glu Glu Ile Leu Ser Lys Leu Ala Asp Val Leu Glu Glu Thr His Tyr Glu Asn Gly Glu Tyr Ile Ile Arg Gln Gly Ala Arg Gly Asp Thr Phe Phe Ile Ile Ser Lys Gly Thr Val Asn Val Thr Arg Glu Asp Ser Pro Ser Glu Asp Pro Val Phe Leu Arg Thr Leu Gly Lys Gly Asp Trp Phe Gly Glu Lys Ala Leu Gln Gly Glu Asp Val Arg Thr Ala Asn Val Ile Ala Ala Glu Ala Val Thr Cys Leu Val Ile Asp Arg Asp Ser Phe Lys His Leu Ile Gly Gly Leu Asp Asp Val Ser Asn Lys Ala Tyr Glu Asp Ala Glu Ala Lys Ala Lys Tyr Glu Ala Glu Ala Ala Phe Phe Ala Asn Leu Lys Leu Ser Asp Phe Asn Ile Ile Asp Thr Leu Gly Val Gly Gly Phe Gly Arg Val Glu Leu Val Gln Leu Lys Ser Glu Glu Ser Lys Thr Phe Ala Met Lys Ile Leu Lys Lys Arg His Ile Val Asp Thr Arg Gln Gln Glu His Ile Arg Ser Glu Lys Gln Ile Met Gln Gly Ala His Ser Asp Phe Ile Val Arg Leu Tyr Arg Thr Phe Lys Asp Ser Lys Tyr Leu Tyr Met Leu Met Glu Ala Cys Leu Gly Gly Glu Leu Trp Thr Ile Leu Arg Asp Arg Gly Ser Phe Glu Asp Ser Thr Thr Arg Phe Tyr Thr Ala Cys Val Val Glu Ala Phe Ala Tyr Leu His Ser Lys Gly Ile Ile Tyr Arg Asp Leu Lys Pro Glu Asn Leu Ile Leu Asp His Arg Gly Tyr Ala Lys Leu Val Asp Phe Gly Phe Ala Lys Lys Ile Gly Phe Gly Lys Lys Thr Trp Thr Phe Cys Gly Thr Pro Glu Tyr Val Ala Pro Glu Ile Ile Leu Asn Lys Gly His Asp Ile Ser Ala Asp Tyr Trp Ser Leu Gly Ile Leu Met Tyr Glu Leu Leu Thr Gly Ser Pro Pro Phe Ser Gly Pro Asp Pro Met Lys Thr Tyr Asn Ile Ile Leu Arg Gly Ile Asp Met Ile Glu Phe Pro Lys Lys Ile Ala Lys Asn Ala Ala Asn Leu Ile Lys Lys Leu Cys Arg Asp Asn Pro Ser Glu Arg Leu Gly Asn Leu Lys Asn Gly Val Lys Asp Ile Gln Lys His Lys Trp Phe Glu Gly Phe Asn Trp Glu Gly Leu Arg Lys Gly Thr Leu Thr Pro Pro Ile Ile Pro Ser Val Ala Ser Pro Thr Asp Thr Ser Asn Phe Asp Ser Phe Pro Glu Asp Asn Asp Glu Pro Pro Pro Asp Asp Asn Ser Gly Trp Asp Ile Asp Phe Ser Asp 

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Pro Pro Val Ala Thr Met Val Ser Lys Gly Glu Glu Leu Phe Thr Gly
                                      700
        695
 690
Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val Asn Gly His Lys
                                     715
                 710
Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu
                                                     735
                                  730
              725
Thr Leu Lys Phe Ile Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro
                                    750
                              745
Thr Leu Val Thr Thr Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr
                          760
Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu
                      775
                                         780
Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr
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                   790
Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg
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                                 810
               805
Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly
                                               830
                              825
          820
His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala
                         840
Asp Lys Gln Lys Asn Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn
                                         860
                      855
Ile Glu Asp Gly Ser Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr
                                     875
                  870
Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser
                                  890
              885
Thr Gln Ser Ala Leu Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met
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 gtc gag ctg gac ggc gac gta aac ggc cac aag ttc agc gtg tcc ggc
                                                                    96
 Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                25
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gag Glu	ggc Gly	gag Glu 35	ggc Gly	gat Asp	gcc Ala	acc Thr	tac Tyr 40	ggc Gly	aag Lys	ctg Leu	acc Thr	ctg Leu 45	aag Lys	ttc Phe	atc Ile	144
													gtg Val			192
Leu 65	Thr	Tyr	Gly	Val	Gln 70	Cys	Phe	Ser	Arg	Tyr 75	Pro	Asp	cac His	Met	Lys	240
													gtc Val			288
													cgc Arg 110			336
													ctg Leu			384
Ile	Asp 130	Phe	Lys	Glu	Asp	Gly 135	Asn	Ile	Leu	Gly	His 140	Lys	ctg Leu	Glu	Tyr	432
Asn 145	Tyr	Asn	Ser	His	Asn 150	Val	Tyr	Ile	Met	Ala 155	Asp	Lys	cag Gln	Lys	Asn 160	480
Gly	Ile	Lys	Val	Asn 165	Phe	Lys	Ile	Arg	His 170	Asn	Ile	Glu	gac Asp	Gly 175	Ser	528
													ggc Gly 190			576
Pro	Val	Leu 195	Leu	Pro	Asp	Asn	His 200	Tyr	Leu	Ser	Thr	Gln 205	tcc Ser	Ala	Leu	624
agc Ser	aaa Lys 210	gac Asp	ccc Pro	aac Asn	gag Glu	aag Lys 215	cgc Arg	gat Asp	cac His	atg Met	gtc Val 220	ctg Leu	ctg Leu	gag Glu	ttc Phe	672
Val 225	Thr	Āla	Ala	Gly	Ile 230	Thr	Leu	Gly	Met	Asp 235	Glu	Leu	tac Tyr	Lys	Ser 240	720
Gly	Leu	Arg	Ser	Arg 245	Gly	Thr	Met	Ser	Asp 250	Val	Ala	Ile	gtg Val	Lys 255	Glu	768
Gly	Trp	Leu	His 260	Lys	Arg	Gly	Glu	Tyr 265	Ile	Lys	Thr	Trp	cgg Arg 270	Pro	Arg	816
Tyr	Phe	Leu 275	Leu	Lys	Asn	Asp	Gly 280	Thr	Phe	Ile	Gly	Tyr 285	aag Lys	Glu	Arg	864
Pro	Gln 290	Asp	Val	Asp	Gln	Arg 295	Glu	Ala	Pro	Leu	Asn 300	Asn	ttc Phe	Ser	Val	912
Ala 305	Gln	Суѕ	Gln	Leu	Met 310	Lys	Thr	Glu	Arg	Pro 315	Arg	Pro	aac Asn	Thr	Phe 320	960
Ile	Ile	Arg	Суѕ	Leu 325	Gln	Trp	Thr	Thr	Val 330	Ile	Glu	Arg	acc Thr	Phe 335	His	1008
Val	Glu	Thr	Pro 340	Glu	Glu	Arg	Glu	Glu 345	Trp	Thr	Thr	Ala	atc Ile 350	Gln	Thr	1056
gtg Val	gct Ala	gac Asp 355	Gly	ctc Leu	aag Lys	aag Lys	cag Gln 360	Glu	gag Glu	gag Glu	gag Glu	atg Met 365	gac Asp	ttc Phe	cgg Arg	1104

tcg Ser	ggc Gly 370	tca Ser	ccc Pro	agt Ser	gac Asp	aac Asn 375	tca Ser	ggg Gly	gct Ala	gaa Glu	gag Glu 380	atg Met	gag Glu	gtg Val	tcc Ser	1152
Leu 385	Ala	Lys	Pro	Lys	cac His 390	Arg	Val	Thr	Met	Asn 395	Glu	Phe	Glu	Tyr	Leu 400	1200
Lys	Leu	Leu	Gly	Lys 405	ggc Gly	Thr	Phe	Gly	Lys 410	Val	Ile	Leu	Val	Lys 415	Glu	1248
Lys	Ala	Thr	Gly 420	Arg	tac Tyr	Tyr	Ala	Met 425	Lys	Ile	Leu	Lys	Lys 430	Glu	Val	1296
Ile	Val	Ala 435	Lys	Asp	gag Glu	Val	Ala 440	His	Thr	Leu	Thr	Glu 445	Asn	Arg	Val	1344
Leu	Gln 450	Asn	Ser	Arg	cac His	Pro 455	Phe	Leu	Thr	Ala	Leu 460	Lys	Tyr	Ser	Phe	1392
Gln 465	Thr	His	Asp	Arg	ctc Leu 470	Cys	Phe	Val	Met	Glu 475	Tyr	Ala	Asn	Gly	Gly 480	1440
Glu	Leu	Phe	Phe	His 485	ctg Leu	Ser	Arg	Glu	Arg 490	Val	Phe	Ser	Glu	Asp 495	Arg	1488
Ala	Arg	Phe	Tyr 500	Gly	gct Ala	Glu	Ile	Val 505	Ser	Ala	Leu	Asp	Tyr 510	Leu	His	1536
Ser	Glu	Lys 515	Asn	Val	gtg Val	Tyr	Arg 520	Asp	Leu	Lys	Leu	Glu 525	Asn	Leu	Met	1584
Leu	Asp 530	Lys	Asp	Gly	cac His	Ile 535	Lys	Ile	Thr	Asp	Phe 540	Gly	Leu	Cys	Lys	1632
Glu 545	Gly	Ile	Lys	Asp	ggt Gly 550	Ala	Thr	Met	Lys	Thr 555	Phe	Cys	Gly	Thr	Pro 560	1680
Glu	Tyr	Leu	Ala	Pro 565	gag Glu	Val	Leu	Glu	Asp 570	Asn	Asp	Tyr	Gly	Arg 575	Ala	1728
Val	Asp	Trp	Trp 580	Gly	ctg Leu	Gly	Val	Val 585	Met	Tyr	Glu	Met	Met 590	Суѕ	Gly	1776
Arg	Leu	Pro 595	Phe	Tyr	aac Asn	Gln	Asp 600	His	Glu	Lys	Leu	Phe 605	Glu	Leu	Ile	1824
Leu	Met 610	Glu	Glu	Ile	cgc Arg	Phe 615	Pro	Arg	Thr	Leu	Gly 620	Pro	Glu	Ala	Lys	1872
Ser 625	Leu	Leu	Ser	Gly	ctg Leu 630	Leu	Lys	Lys	Asp	Pro 635	Lys	Gln	Arg	Leu	Gly 640	1920
Gly	Gly	Ser	Glu	Asp 645	gcc Ala	Lys	Glu	Ile	Met 650	Gln	His	Arg	Phe	Phe 655	Ala	1968
Gly	Ile	Val	Trp 660	Gln	cac His	Val	Tyr	Glu 665	Lys	Lys	Leu	Ser	Pro 670	Pro	Phe	2016
Lys	Pro	Gln 675	Val	Thr	Ser	Glu	Thr 680	Asp	Thr	Arg	Tyr	Phe 685	Asp	Glu	gag Glu	2064
ttc Phe	acg Thr 690	Ala	cag Gln	atg Met	atc Ile	acc Thr 695	Ile	aca Thr	cca Pro	cct Pro	gac Asp 700	Gln	gat Asp	gac Asp	agc Ser	2112

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atg gag tgt gtg gac agc gag cgc agg ccc cac ttc ccc cag ttc tcc
Met Glu Cys Val Asp Ser Glu Arg Arg Pro His Phe Pro Gln Phe Ser
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Tyr Ser Ala Ser Ser Thr Ala
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                           40
Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
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                                           60
Leu Thr Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys
                   70
                                       75
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
                                   90
               8.5
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
           100
                              105
                                                  110
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
       115
                          120
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
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Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn
                   150
                                       155
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser
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Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
           180
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Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu
                           200
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
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Val Thr Ala Ala Gly Ile Thr Leu Gly Met Asp Glu Leu Tyr Lys Ser
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Gly Leu Arg Ser Arg Gly Thr Met Ser Asp Val Ala Ile Val Lys Glu
                                  250 255
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Gly Trp Leu His Lys Arg Gly Glu Tyr Ile Lys Thr Trp Arg Pro Arg
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Tyr Phe Leu Leu Lys Asn Asp Gly Thr Phe Ile Gly Tyr Lys Glu Arg
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Pro Gln Asp Val Asp Gln Arg Glu Ala Pro Leu Asn Asn Phe Ser Val
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2160

2184

315

300

295

Ala Gln Cys Gln Leu Met Lys Thr Glu Arg Pro Arg Pro Asn Thr Phe

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Leu Ala Lys Pro Lys His Arg Val Thr Met Asn Glu Phe Glu Tyr Leu
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Lys Leu Leu Gly Lys Gly Thr Phe Gly Lys Val Ile Leu Val Lys Glu
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Ile Val Ala Lys Asp Glu Val Ala His Thr Leu Thr Glu Asn Arg Val
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Leu Gln Asn Ser Arg His Pro Phe Leu Thr Ala Leu Lys Tyr Ser Phe
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Gln Thr His Asp Arg Leu Cys Phe Val Met Glu Tyr Ala Asn Gly Gly
465 470 475 480
Glu Leu Phe Phe His Leu Ser Arg Glu Arg Val Phe Ser Glu Asp Arg
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Ala Arg Phe Tyr Gly Ala Glu Ile Val Ser Ala Leu Asp Tyr Leu His
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Ser Glu Lys Asn Val Val Tyr Arg Asp Leu Lys Leu Glu Asn Leu Met
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Leu Asp Lys Asp Gly His Ile Lys Ile Thr Asp Phe Gly Leu Cys Lys
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Glu Gly Ile Lys Asp Gly Ala Thr Met Lys Thr Phe Cys Gly Thr Pro
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              565
Val Asp Trp Trp Gly Leu Gly Val Val Met Tyr Glu Met Met Cys Gly
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Arg Leu Pro Phe Tyr Asn Gln Asp His Glu Lys Leu Phe Glu Leu Ile
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Leu Met Glu Glu Ile Arg Phe Pro Arg Thr Leu Gly Pro Glu Ala Lys
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                                      620
Ser Leu Leu Ser Gly Leu Leu Lys Lys Asp Pro Lys Gln Arg Leu Gly
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                                     635
Gly Gly Ser Glu Asp Ala Lys Glu Ile Met Gln His Arg Phe Phe Ala
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                                 650
Gly Ile Val Trp Gln His Val Tyr Glu Lys Lys Leu Ser Pro Pro Phe
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Lys Pro Gln Val Thr Ser Glu Thr Asp Thr Arg Tyr Phe Asp Glu Glu
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                                           685
Phe Thr Ala Gln Met Ile Thr Ile Thr Pro Pro Asp Gln Asp Asp Ser
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                                                                       96
Ser Gly Pro Tyr Val Glu Ile Ile Glu Gln Pro Lys Gln Arg Gly Met
            20
                                25
cgc ttc cgc tac aag tgc gag ggg cgc tcc gcg ggc agc atc cca ggc
                                                                      144
Arg Phe Arg Tyr Lys Cys Glu Gly Arg Ser Ala Gly Ser Ile Pro Gly
                            40
gag agg agc aca gat acc acc aag acc cac ccc acc atc aag atc aat
                                                                      192
Glu Arg Ser Thr Asp Thr Thr Lys Thr His Pro Thr Ile Lys Ile Asn
                        55
ggc tac aca gga cca ggg aca gtg cgc atc tcc ctg gtc acc aag gac
                                                                      240
Gly Tyr Thr Gly Pro Gly Thr Val Arg Ile Ser Leu Val Thr Lys Asp
                    70
                                        75
cet cet cac egg cet cac ecc cac gag ett gta gga aag gae tge egg
                                                                      288
Pro Pro His Arg Pro His Pro His Glu Leu Val Gly Lys Asp Cys Arg
               8.5
                                    90
gat ggc ttc tat gag gct gag ctc tgc ccg gac cgc tgc atc cac agt
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Asp Gly Phe Tyr Glu Ala Glu Leu Cys Pro Asp Arg Cys Ile His Ser
            100
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ttc cag aac ctg gga atc cag tgt gtg aag aag cgg gac ctg gag cag
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Phe Gln Asn Leu Gly Ile Gln Cys Val Lys Lys Arg Asp Leu Glu Gln
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gct atc agt cag cgc atc cag acc aac aac ccc ttc caa gtt cct
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Ala Ile Ser Gln Arg Ile Gln Thr Asn Asn Asn Pro Phe Gln Val Pro
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ata gaa gag cag cgt ggg gac tac gac ctg aat gct gtg cgg ctc tgc
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Ile Glu Glu Gln Arg Gly Asp Tyr Asp Leu Asn Ala Val Arg Leu Cys
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ttc cag gtg aca gtg cgg gac cca tca ggc agg ccc ctc cgc ctg ccg
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Phe Gln Val Thr Val Arg Asp Pro Ser Gly Arg Pro Leu Arg Leu Pro
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                                    170
cct gtc ctt cct cat ccc atc ttt gac aat cgt gcc ccc aac act gcc
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Pro Val Leu Pro His Pro Ile Phe Asp Asn Arg Ala Pro Asn Thr Ala
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                                185
                                                    190
gag ete aag ate tge ega gtg aac ega aac tet gge age tge ete ggt
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Glu Leu Lys Ile Cys Arg Val Asn Arg Asn Ser Gly Ser Cys Leu Gly
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                                                 205
ggg gat gag atc ttc cta ctg tgt gac aag gtg cag aaa gag gac att
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Gly Asp Glu Ile Phe Leu Leu Cys Asp Lys Val Gln Lys Glu Asp Ile
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gag gtg tat ttc acg gga cca ggc tgg gag gcc cga ggc tcc ttt tcg
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Glu Val Tyr Phe Thr Gly Pro Gly Trp Glu Ala Arg Gly Ser Phe Ser
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caa gct gat gtg cac cga caa gtg gcc att gtg ttc cgg acc cct ccc
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Gln Ala Asp Val His Arg Gln Val Ala Ile Val Phe Arg Thr Pro Pro
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Leu	Pro 290	Āsp	Thr	Āsp	gat Asp	Arg 295	His	Arg	Ile	Glu	Glu 300	Lys	Arg	Lys	Arg	912
Thr 305	Tyr	Ğlü	Thr	Phe	aag Lys 310	Ser	Ile	Met	Lys	Lys 315	Ser	Pro	Phe	Ser	Gly 320	960
Pro	Thr	Asp	Pro	Arg 325	cct Pro	Pro	Pro	Arg	Arg 330	Ile	Ala	Val	Pro	Ser 335	Arg	1008
Ser	Ser	Ala	Ser 340	Val	ccc Pro	Lys	Pro	Ala 345	Pro	Gln	Pro	Tyr	Pro 350	Phe	Thr	1056
Ser	Ser	Leu 355	Ser	Thr	atc Ile	Asn	Tyr 360	Asp	Glu	Phe	Pro	Thr 365	Met	Val	Phe	1104
Pro	Ser 370	Gly	Gln	Ile	agc Ser	Gln 375	Ala	Ser	Ala	Leu	Ala 380	Pro	Ala	Pro	Pro	1152
Gln 385	Val	Leu	Pro	Gln	gct Ala 390	Pro	Ala	Pro	Ala	Pro 395	Ala	Pro	Ala	Met	Val 400	1200
Ser	Āla	Leu	Ala	Gln 405	gcc Ala	Pro	Ala	Pro	Val 410	Pro	Val	Leu	Ala	Pro 415	Gly	1248
Pro	Pro	Gln	Ala 420	Val	gcc Ala	Pro	Pro	Ala 425	Pro	Lys	Pro	Thr	Gln 430	Ala	Gly	1296
Ğlu	Gly	Thr 435	Leu	Ser	gag Glu	Ala	Leu 440	Leu	Gln	Leu	Gln	Phe 445	Asp	Asp	Glu	1344
Asp	Leu 450	Gly	Āla	Leu	ctt Leu	Gly 455	Asn	Ser	Thr	Asp	Pro 460	Ala	Val	Phe	Thr	1392
Asp 465	Leu	Ala	Ser	Val	gac Asp 470	Asn	Ser	Glu	Phe	Gln 475	Gln	Leu	Leu	Asn	Gln 480	1440
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Pro	Glu	Āla	Ile 500	Thr	cgc Arg	Leu	Val	Thr 505	Gly	Ala	Gln	Arg	Pro 510	Pro	Asp	1536
Pro	Ala	Pro 515	Ala	Pro	ctg	Gly	Ala 520	Pro	Gly	Leu	Pro	Asn 525	Gly	Leu	Leu	1584
Ser	Gly 530	Asp	Glu	Asp	ttc Phe	Ser 535	Ser	Ile	Ala	Asp	Met 540	Asp	Phe	Ser	Ala	1632
Leu 545	Leu	Ser	Gln	Ile	agc Ser 550	Ser	Leu	Asp	Pro	Pro 555	Val	Ala	Thr	Met	Val 560	1680
Ser	Lys	Gly	Glu	Glu 565		Phe	Thr	Gly	Val 570	Val	Pro	Ile	Leu	Val 575	Glu	1728
ctg Leu	gac Asp	ggc	gac Asp 580	gta Val	aac Asn	Gly	cac His	aag Lys 585	Phe	agc Ser	gtg Val	Ser	ggc Gly 590	Glu	ggc	1776

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Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr
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Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His
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gac ttc ttc aag tcc gcc atg ccc gaa ggc tac gtc cag gag cgc acc
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Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr
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                                                                     2016
atc ttc ttc aag gac gac ggc aac tac aag acc cgc gcc gag gtg aag
Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys
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                                                685
       675
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Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr
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Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile
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Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln
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                725
                                                                     2256
ctc gcc gac cac tac cag cag aac acc ccc atc ggc gac ggc ccc gtg
Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val
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ctg ctg ccc gac aac cac tac ctg agc acc cag tcc gcc ctg agc aaa
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Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys
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                            760
gac ccc aac gag aag cgc gat cac atg gtc ctg ctg gag ttc gtg acc
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Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr
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          100
Phe Gln Asn Leu Gly Ile Gln Cys Val Lys Lys Arg Asp Leu Glu Gln
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Ala Ile Ser Gln Arg Ile Gln Thr Asn Asn Asn Pro Phe Gln Val Pro
                                         140
                     135
Ile Glu Glu Gln Arg Gly Asp Tyr Asp Leu Asn Ala Val Arg Leu Cys
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Phe Gln Val Thr Val Arg Asp Pro Ser Gly Arg Pro Leu Arg Leu Pro
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               165
Pro Val Leu Pro His Pro Ile Phe Asp Asn Arg Ala Pro Asn Thr Ala
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                              185
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Glu Leu Lys Ile Cys Arg Val Asn Arg Asn Ser Gly Ser Cys Leu Gly
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Gly Asp Glu Ile Phe Leu Leu Cys Asp Lys Val Gln Lys Glu Asp Ile
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Glu Val Tyr Phe Thr Gly Pro Gly Trp Glu Ala Arg Gly Ser Phe Ser
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Gln Ala Asp Val His Arg Gln Val Ala Ile Val Phe Arg Thr Pro Pro
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Tyr Ala Asp Pro Ser Leu Gln Ala Pro Val Arg Val Ser Met Gln Leu
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Arg Arg Pro Ser Asp Arg Glu Leu Ser Glu Pro Met Glu Phe Gln Tyr
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                 280
Leu Pro Asp Thr Asp Asp Arg His Arg Ile Glu Glu Lys Arg Lys Arg
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Thr Tyr Glu Thr Phe Lys Ser Ile Met Lys Lys Ser Pro Phe Ser Gly
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                                      315
 Pro Thr Asp Pro Arg Pro Pro Pro Arg Arg Ile Ala Val Pro Ser Arg
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                325
 Ser Ser Ala Ser Val Pro Lys Pro Ala Pro Gln Pro Tyr Pro Phe Thr
                              345
 Ser Ser Leu Ser Thr Ile Asn Tyr Asp Glu Phe Pro Thr Met Val Phe
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                           360
 Pro Ser Gly Gln Ile Ser Gln Ala Ser Ala Leu Ala Pro Ala Pro Pro
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 Gln Val Leu Pro Gln Ala Pro Ala Pro Ala Pro Ala Pro Ala Met Val
                                      395
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 Ser Ala Leu Ala Gln Ala Pro Ala Pro Val Pro Val Leu Ala Pro Gly
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 Pro Pro Gln Ala Val Ala Pro Pro Ala Pro Lys Pro Thr Gln Ala Gly
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 Glu Gly Thr Leu Ser Glu Ala Leu Leu Gln Leu Gln Phe Asp Asp Glu
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 Asp Leu Gly Ala Leu Leu Gly Asn Ser Thr Asp Pro Ala Val Phe Thr
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 Asp Leu Ala Ser Val Asp Asn Ser Glu Phe Gln Gln Leu Leu Asn Gln
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 Gly Ile Pro Val Ala Pro His Thr Thr Glu Pro Met Leu Met Glu Tyr
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 Pro Glu Ala Ile Thr Arg Leu Val Thr Gly Ala Gln Arg Pro Pro Asp
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  Leu Leu Ser Gln Ile Ser Ser Leu Asp Pro Pro Val Ala Thr Met Val
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Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly
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Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr
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                          600
Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr
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Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Gln His
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Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr
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               645
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                               665
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                           680
Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr
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Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile
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                    710
Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln
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                                    730
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Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val
                                                  750
                             745
            740
Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Ala Leu Ser Lys
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                                                                       96
  Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
                                25
             20
  gag ggc gag ggc gat gcc acc tac ggc aag ctg acc ctg aag ttc atc
                                                                      144
  Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile
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		35					40					45					
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_	50					55					60					240	
ctg . Leu	acc Thr	tac	ggc	gtg Val	cag Gln	tgc Cvs	ttc Phe	agc Ser	cgc Arq	tac Tyr	Pro	gac Asp	His	Met	Lys	240	
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cag	cac	gac	ttc	ttc	aag	tcc Ser	gcc	atg Met	ccc Pro	gaa Glu	ggc Glv	tac Tyr	gtc Val	Gln	Glu	200	
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cgc	acc	atc	ttc	ttc	aag	gac	gac	ggc Glv	aac Asn	tac Tvr	aag Lvs	acc Thr	cgc Ara	gcc Ala	gag Glu	336	
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		115					120					Glu 125					
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Ile	Asp 130	Phe	Lys	Glu	Asp	GLY 135	Asn	iie	ьeu	СТА	140	Lys	цец	Gru	- y -		
aac	tac	aac	agc	cac	aac	atc	tat	atc	atg	gcc	gac	aag	cag	aag	aac	480	
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Val	Gln	Leu	Ala	Asp	His	Tyr	Gln	Gln 185	Asn	Thr	Pro	Ile	Gly 190	Asp	GLY		
ccc	ata	cta	180 cta	ccc	gac	aac	cac	tac	ctg	agc	acc	cag	tcc	gcc	ctg	624	
Pro	Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Thr	Gln 205	Ser	Ala	Leu		
age	aaa	195	CCC	aac	gag	aag	200 cqc	gat	cac	atg	gtc	ctg	ctg	gag	ttc	672	
Ser	Lys	Asp	Pro	Asn	Ğlü	Lys	Arg	Asp	His	Met	Val 220	ьeu	Leu	Glu	Phe		
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Val	Thr	Ala	Ala	Gly	Ile	Thr	Leu	Gly	Met	Asp	Glu	Leu	Tyr	Lys	Ser 240		
225	a+ a		+ c+	cas	230	atα	gac	gaa	cta	235 ttc	ccc	ctc	ato	ttc	ccg	768	
Gly	Leu	Arc	g Ser	Arg	Ala	Met	Asp	Glu	Leu	Phe	Pro	Leu	Ile	Pne	PIO		
	~			245	י מככ	tct	aac	ccc	250 tat		gac	ato	att	255 gag	cag	816	
Ala	Glu	ı Pro	Ala	Glr	, goo n Ala	Ser	Gly	Pro	Туг	Val	Ğlı	ılle	TTE	GIL	Gln		
			260	)	, ato	cac	++c	265		aaq	t.ac	gac	270 aga		tcc	864	
Pro	Lys	Gli	n Arq	g Gl	/ Met	Arg	Phe	Arg	Туг	Lys	Cys	S GIU	т ст7	Arg	g Ser		
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gcg Ala	gg Gl	z ag	r Ile	e Pro	o Gly	, Glu	Arc	, ago , Ser	Thi	Asp	Tn:	r ini	Lys	Th	r His		
	291	)				295	5				30	U					
CCC Pro	aco Th:	c at r Il	c aa e Lv:	g ato s Ile	c aat e Asr	ggc Gly	; tac / Ty:	Thi	Gl:	y Pro	G1	y Thi	r Va	l Ar	g Ile		
305	;				310	)				315	)				320		
tcc	ct	g gt	c ac	c aa r Lv	g gad s Asi	c cct	cci Pro	cac o His	c cg	g cci g Pro	o Hi	s Pro	o Hi	s Gl	g ctt u Leu	. 1000	
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gta	a gg	a aa	g ga	c tg	c cg	g gai	t gg	c tto v Pho	ta Tv	t gaq r Gl	g gc u Al	t ga a Gl	u Le	c tg u Cy	c ccg s Pro		
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gad	c cg	c tg	c at	сса	c ag	t tt	c ca	g aa	c ct	g gg	a at v ті	c ca	g tg n Cv	t gt s Va	g aag l Lys	, 1104 s	
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Ly	s Ar	g As	sp Le	u Gl	u Gl	n Al	a II	e 5e	r GT	II AL	9 11	. G G I	111	_ 110	n Asr	=	

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Asn	Ala	Val	Arg		Cys	Phe	Gln	Val	1'nr 410	vaı	Arg	Asp	Pro	3er 415	GTÀ	
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agg Arg	Pro	T.AII	Arg	Len	Pro	Pro	Val	Leu	Pro	His	Pro	Ile	Phe	Asp	Asn	1230
Arg	110	пси	420	шси	110			425					430	-		
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Arg	Ála	Pro	Asn	Thr	Ala	Glu	Leu	Lys	Ile	Cys	Arg	Val	Asn	Arg	Asn	
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tct	ggc	agc	tgc	ctc	ggt	ggg	gat	gag	atc	ttc	cta	ctg	tgt	gac	aag	1392
Ser	_	Ser	Cys	Leu	GLY	G1y 455	Asp	GIU	тте	Pne	ьеи 460	Leu	Cys	ASP	гуз	
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Ăla	Arg	Gly	Ser	Phe	Ser	Gln	Ala	Asp	Val	His	Arg	Gln	Val	Ala	Ile	
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Val	Phe	Arg	Thr	Pro	Pro	Tyr	Ala	505	Pro	ser	Leu	GIU	510	Pro	val	
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Ara	Val	Ser	Met	Gln	Leu	Ara	Ara	Pro	Ser	Asp	Ara	Glu	Leu	Ser	Glu	
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Pro	Met	Ğlu	Phe	Gln	Tyr	Leu	${\tt Pro}$	Asp	Thr	Asp	Asp	Arg	His	Arg	Ile	
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Ile	Ala	Val	Pro	Ser	Arg	Ser	Ser		Ser	Val	Pro	Lys		Ala	Pro	
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GIN	Pro	595	Pro	Pne	THE	ser	600	ьеи	ser	1111	116	605	ıyı	АЗР	GIU	
+++	ccc		atg	ata	ttt	cct		aaa	caq	atc	agc		gcc	tcg	gcc	1872
Phe	Pro	Thr	Met	Val	Phe	Pro	Ser	Gly	Gln	Ile	Ser	Gln	Ăla	Ser	Āla	
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625					630	+	~~+	a+ a	~~~	635	acc	663	acc	cct	640 atc	1968
CCT	gct	CCa Pro	gcc Ala	Mot	Val	Ser	Ala	Len	Ala	Gln	Ala	Pro	Ala	Pro	Val	1300
FIO	ліа	FIO	nra	645	Val	001	2120	Lou	650					655		
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Pro	Val	Leu	Āla	Pro	Ğly	Pro	Pro	Gln	Ala	Val	Ala	Pro	Pro	Ala	Pro	
			660					665					670			2254
aag	ccc	acc	cag	gct	ggg	gaa	gga	acg	ctg	tca	gag	gcc	ctg	ctg	cag	2064
Lys	Pro			Ala	Gly	Glu			Leu	Ser	GIU			ьeu	Gln	
<u>_</u>		675		~~+	<b>~</b> ~ ~	a = c	680		acc	tta	c++	685		adc	aca	2112
CEG	cag راع ا	Pho	ydi	yac	Gl 11	Asn	I.en	999 G] v	Ala	Len	Len	Glv	Asn	Ser	Thr	
пеr	690		p	p	JIU	695		~ <b>-</b> y			700				_	
gac	: сса	gct	gta	tto	aca	gac	ctg	gca	tcc	gto	gac	aac	tcc	gag	ttt	2160
Āsp	Pro	Āla	Vaĺ	Phe	Thr	Asp	Leu	Ala	Ser	Val	Asp	Asn	Ser	Glu	Phe	

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720
                                        715
                   710
cag cag ctg ctg aac cag ggc ata cct gtg gcc ccc cac aca act gag
                                                                    2208
Gln Gln Leu Leu Asn Gln Gly Ile Pro Val Ala Pro His Thr Thr Glu
                                   730
               725
                                                                    2256
ccc atg ctg atg gag tac cct gag gct ata act cgc cta gtg aca ggg
Pro Met Leu Met Glu Tyr Pro Glu Ala Ile Thr Arg Leu Val Thr Gly
                                745
           740
gcc cag agg ccc ccc gac cca gct cct gct cca ctg ggg gcc ccg ggg
                                                                    2304
Ala Gln Arg Pro Pro Asp Pro Ala Pro Ala Pro Leu Gly Ala Pro Gly
                                               765
                            760
        755
                                                                    2352
ctc ccc aat ggc ctc ctt tca gga gat gaa gac ttc tcc tcc att gcg
Leu Pro Asn Gly Leu Leu Ser Gly Asp Glu Asp Phe Ser Ser Ile Ala
                                           780
                        775
                                                                    2394
gac atg gac ttc tca gcc ctg ctg agt cag atc agc tcc taa
Asp Met Asp Phe Ser Ala Leu Leu Ser Gln Ile Ser Ser
                    790
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<211> 797

<212> PRT

<213> Artificial Sequence

<220>

<223> EGFP-NFkappaB fusion

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Gly Leu Arg Ser Arg Ala Met Asp Glu Leu Phe Pro Leu Ile Phe Pro
              245
                                   250
Ala Glu Pro Ala Gln Ala Ser Gly Pro Tyr Val Glu Ile Ile Glu Gln
                               265
Pro Lys Gln Arg Gly Met Arg Phe Arg Tyr Lys Cys Glu Gly Arg Ser
                           280
Ala Gly Ser Ile Pro Gly Glu Arg Ser Thr Asp Thr Thr Lys Thr His
                       295
                                          300
Pro Thr Ile Lys Ile Asn Gly Tyr Thr Gly Pro Gly Thr Val Arg Ile
                                      315
                   310
Ser Leu Val Thr Lys Asp Pro Pro His Arg Pro His Pro His Glu Leu
                                   330
               325
Val Gly Lys Asp Cys Arg Asp Gly Phe Tyr Glu Ala Glu Leu Cys Pro
                               345
Asp Arg Cys Ile His Ser Phe Gln Asn Leu Gly Ile Gln Cys Val Lys
                        360
Lys Arg Asp Leu Glu Gln Ala Ile Ser Gln Arg Ile Gln Thr Asn Asn
                                          380
                     375
Asn Pro Phe Gln Val Pro Ile Glu Glu Gln Arg Gly Asp Tyr Asp Leu
                                      395
                   390
Asn Ala Val Arg Leu Cys Phe Gln Val Thr Val Arg Asp Pro Ser Gly
               405
                                    410
Arg Pro Leu Arg Leu Pro Pro Val Leu Pro His Pro Ile Phe Asp Asn
                               425
            420
Arg Ala Pro Asn Thr Ala Glu Leu Lys Ile Cys Arg Val Asn Arg Asn
                                               445
                           440
Ser Gly Ser Cys Leu Gly Gly Asp Glu Ile Phe Leu Leu Cys Asp Lys
                       455
                                           460
Val Gln Lys Glu Asp Ile Glu Val Tyr Phe Thr Gly Pro Gly Trp Glu
                                       475
                   470
Ala Arg Gly Ser Phe Ser Gln Ala Asp Val His Arg Gln Val Ala Ile
                                   490
               485
Val Phe Arg Thr Pro Pro Tyr Ala Asp Pro Ser Leu Gln Ala Pro Val
                               505
Arg Val Ser Met Gln Leu Arg Arg Pro Ser Asp Arg Glu Leu Ser Glu
                                              525
                           520
        515
Pro Met Glu Phe Gln Tyr Leu Pro Asp Thr Asp Asp Arg His Arg Ile
                                           540
                       535
Glu Glu Lys Arg Lys Arg Thr Tyr Glu Thr Phe Lys Ser Ile Met Lys
                  550
                                        555
Lys Ser Pro Phe Ser Gly Pro Thr Asp Pro Arg Pro Pro Pro Arg Arg
                                    570
Ile Ala Val Pro Ser Arg Ser Ser Ala Ser Val Pro Lys Pro Ala Pro
                                585
            580
 Gln Pro Tyr Pro Phe Thr Ser Ser Leu Ser Thr Ile Asn Tyr Asp Glu
                            600
                                               605
 Phe Pro Thr Met Val Phe Pro Ser Gly Gln Ile Ser Gln Ala Ser Ala
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                       615
 Leu Ala Pro Ala Pro Pro Gln Val Leu Pro Gln Ala Pro Ala Pro Ala
                                        635
                    630
 Pro Ala Pro Ala Met Val Ser Ala Leu Ala Gln Ala Pro Ala Pro Val
                                    650
                645
 Pro Val Leu Ala Pro Gly Pro Pro Gln Ala Val Ala Pro Pro Ala Pro
                               665
           660
 Lys Pro Thr Gln Ala Gly Glu Gly Thr Leu Ser Glu Ala Leu Leu Gln
                            680
 Leu Gln Phe Asp Asp Glu Asp Leu Gly Ala Leu Leu Gly Asn Ser Thr
                                            700
                         695
 Asp Pro Ala Val Phe Thr Asp Leu Ala Ser Val Asp Asn Ser Glu Phe
                                        715
                    710
 Gln Gln Leu Leu Asn Gln Gly Ile Pro Val Ala Pro His Thr Thr Glu
                                    730
                 725
 Pro Met Leu Met Glu Tyr Pro Glu Ala Ile Thr Arg Leu Val Thr Gly
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Ala Gln Arg Pro Pro Asp Pro Ala Pro Ala Pro Gly 765

Leu Pro Asn Gly Leu Leu Ser Gly Asp Glu Asp Glu Asp Glu Ser Jle Ala
770

Asp Met Asp Phe Ser Ala Leu Leu Leu Ser Gln Ile Ser Ser Jeu Ser 785

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